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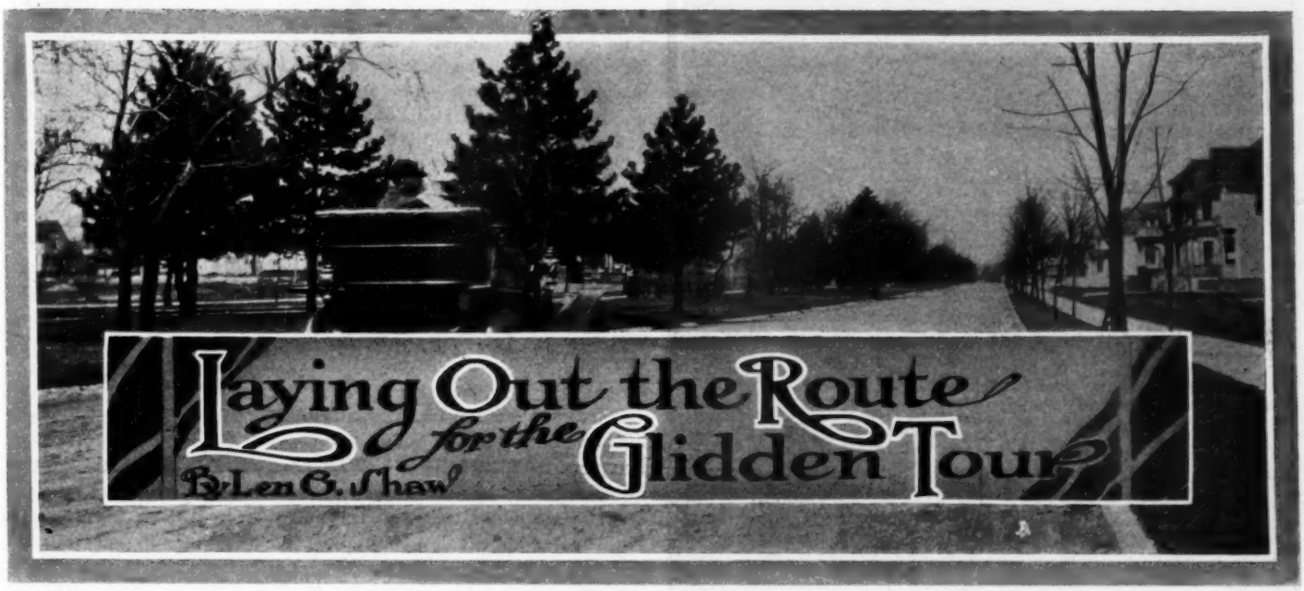
THE AUTOMOBILE



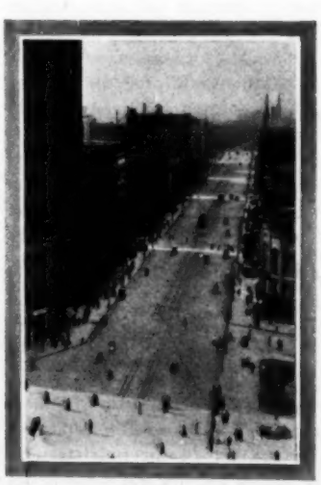
Laying Out the Route for the Glidden Tour

By Len G. Shaw

Pathfinding Party of the A. A. A. Annual Tour Before Leaving Detroit on Its Arduous Spring Journey.

DETROIT, April 12.—With great éclat the E-M-F "30" car that will act as pathfinder for the Glidden tour pulled away from the Hotel Pontchartrain this morning and started on the six weeks' grueling trip which will take it to Chicago, Minneapolis, Omaha, Denver and back to Kansas City, where next Summer's journey and contest for the Glidden Trophy will end.

It was a fitting send-off that the car and its occupants received. Members of the Detroit Automobile Dealers' Association, to whose efforts was largely due the securing of the A. A. A. tour start from this point, and a great number of motoring enthusiasts were on hand to wish the tourists good luck and accompany them out of town. The Pontchartrain was thronged with curious mortals for hours before the time set for the start, and the pathfinding car, stationed in Cadillac square, adjoining the hotel, was the center of attraction for a crowd that at times seriously interfered with traffic. It was a good-natured assemblage, and when at last the "pathfinder" and consorts started off on the first stage of the trip a mighty cheer went up.



Detroit Possesses Beauty.

Secretary Dai H. Lewis, whose fondness for the feathers once he has reached them is proverbial, but who can check his slumber before the alarm clock has finished its get-up song, broke his record by getting up bright and early. Lazarnick, the snap-shotter, too busy elsewhere, sent his associate, Kron, who will cover the trip. The party got away in good season, the sun coming out from under the clouds long enough to bid adieu, with a 40-mile "zephyr" from the South giving assurance of plenty of fresh air on the opening day, at least.

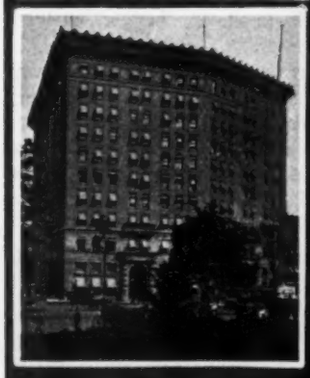
It is worthy of note that the E-M-F "30" which will carry the pathfinders through to their destination and then make its way back to Detroit came out of the finishing room at the factory at just noon on Saturday last, with never a taste of the road up to that time. Whisked off the elevator, the commutator was given a slight adjustment, and George Meinzinger, the driver, who will take the car through, E. Leroy Pelletier, the advertising manager, and one or two others climbed in and gave the car its first touch of the strenuous life. A run of a few miles, and it went back to the factory to have tire cases, luggage holders, and other appliances fitted, and was ready to start that afternoon, if needs be. No special preparation was made, a stock car taken from the regular factory run being selected, showing the thoroughness with which the E-M-F product is made. President Lane of the D. A. D. A. handed a flag to Lewis to present to the Denver Automobile Club. "Tell them we will come and get it in July," said Lane.

Pelletier Entertains Lewis.

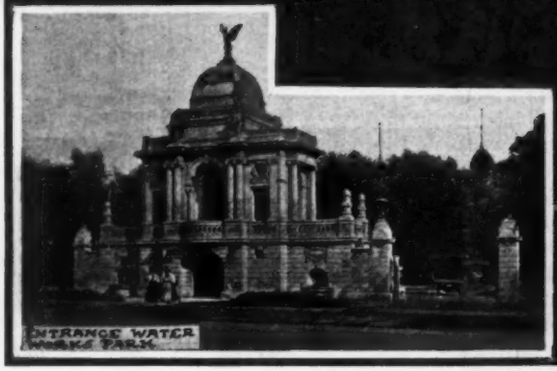
AUTO CLUB'S HOME AT PINE LAKE

WHERE THE MOTOR-BOATISTS HOLD FORTH

HOTEL TULLER, HOME OF DETROIT DEALERS' ASSOCIATION



HOTEL PONTCHARTRAIN START OF THE TOUR



ENTRANCE WATER WORKS PARK

Of course, Dai H. Lewis, secretary of the Contest Board, will make the entire journey in the car, as will the driver, Meinzinger, no mechanician being carried. Mr. Pelletier will go the greater portion of the way. In addition a member of the local press will be picked up at each important point, continuing with the party until the next man relieves him. This gives variety and at the same time stimulates local interest.

Six Weeks Required to Lay Out Tour.

Pathfinding, as the initiated know, is no sinecure. The distances must be carefully computed, every distinguishing mark along the route noted, every turn or cross-roads photographed, and an astounding amount of detail looked after. On the six weeks which will be occupied by the pathfinders it is expected that not less than one thousand photographs will be taken. No attempt at breaking records will be made, owing to the exacting nature of the work. The journey will be made by easy stages, as easy stages go at this season of the year. The trip is undertaken fifteen days earlier this year, but no difficulty is anticipated.

Preliminary to the start, a dinner was tendered officials of the Detroit Automobile Dealers' Association, members of the local press and few others at the Hotel Portchartrain, Sunday evening, Dai H. Lewis being the guest of honor and E. Leroy Pelletier acting as host. In the course of his talk Secretary Lewis stated that to date 29 entries had been received, as against six at this time last year, and he fully expected that by the closing date the number would total one hundred.

Now Possible for an Individual to Win Glidden.

This year, for the first time, it will be possible for an individual entrant to win the Glidden trophy. It will not be a competition between clubs, and there will be no teams. The winner of the Glidden prize will have personal custody of it for a year, it being a perpetual trophy. There will be a new Hower trophy for runabouts, which will become the permanent possession of the winner as in former seasons. This year there is also a new prize for cars with miniature bodies, or double rumbles. This is known as the Detroit trophy, it having been subscribed for and presented by the motorists of that city. The Glidden deed of gift had to be altered to permit of its going to an individual instead of a club, and the rules of the contest have been modified accordingly, the changes being such that a single winner is certain to be evolved. The cars will be classified and penalties will be imposed in fractions of a point for repairs and replacements.

The tour will be a little longer than usual this year, but not much more strenuous, except that the rules will be more exacting to prevent the large number of tied scores there have been at the finish in former yeras. Some poor roads will be encountered west of Chicago, but Glidden contestants will not be surprised at anything in this line and it is expected that the average daily distance covered will be as great or greater than in former years.

The most distinctly novel feature of the tour this year will be the arrangements for the overnight accommodation of the contestants over a part of the distance west of Chicago. Arrangements are being made to have a group of sleeping and dining cars accompany the tour and be sidetracked at the various night stopping places. This is necessary because of inadequate hotel room. It will obviate the annual bickering about "a room and bath" in places where there are not enough for all, and also it will make it compulsory to exclude women from the tour. The cars will afford accommodations at a lower cost than hotels.

What Happened the First Day's Journey.

JACKSON, MICH., April 12.—The first day's grind of the Glidden pathfinder came to a close late this afternoon, Jackson being the stopping point for the night. No attempt at making time marked the journey, but the 75 miles were covered in six hours, including a stop of one hour at Ann Arbor for dinner and numerous halts along the line while Secretary Lewis and Photographer Kron secured data and pictures for the use of the tourists next July. This day's run would not be worth chronicling were it not for its value in showing what can be accomplished over southern

Michigan roads. A 30-mile head-on wind blew all day, at times assuming the proportions of a gale.

But when it was all over to-night Secretary Lewis was jubilant. "Fine roads, as good as I ever encountered, particularly at this time of the year," said the veteran pathfinder. "When you can make a run like that in the middle of April, there is no limit to what you can accomplish in the middle of July."

Pathfinder Encounters an April Snowstorm.

KALAMAZOO, MICH., April 13.—The pathfinder had a most strenuous day, forcing its way through a blinding snowstorm during the greater part of the forenoon. The party reached here this afternoon, after navigating roads that were miniature lakes. South Bend is the destination of Wednesday night.

ABOUT THE CITY OF THE STRAITS.

DETROIT, April 12.—Brief though their stay may be, Glidden tourists who foregather in Detroit in July, making this the starting point of the year's big event in motordom, will long have reason to remember with pleasure their visit here. Every waking hour—and the others will be few—will be monopolized by the local entertainment committee, and from the time the vanguard arrives until the last tourist has left the city, there will not be a dull moment.

Those whose interest centers in the motor industry will find more here that is worth while than in any other city in the world. Detroit is admittedly the hub of the automobile industry, being among the first to produce practical cars, and leading the procession from that day to the present time. It has ten of the largest factories devoted to the manufacture of motor cars ranging in price from a few hundred dollars up as high as the purchaser may desire to go, and a score of smaller plants. This season they will produce all told in excess of 50,000 cars—not press agent, but real ones—all of which will be sold for real money. These cars will have a market value of considerably more than $55,000,000. If placed end to end they would make a string more than eighty-five miles in length, and would be able to transport an army of 200,000 men at one time.

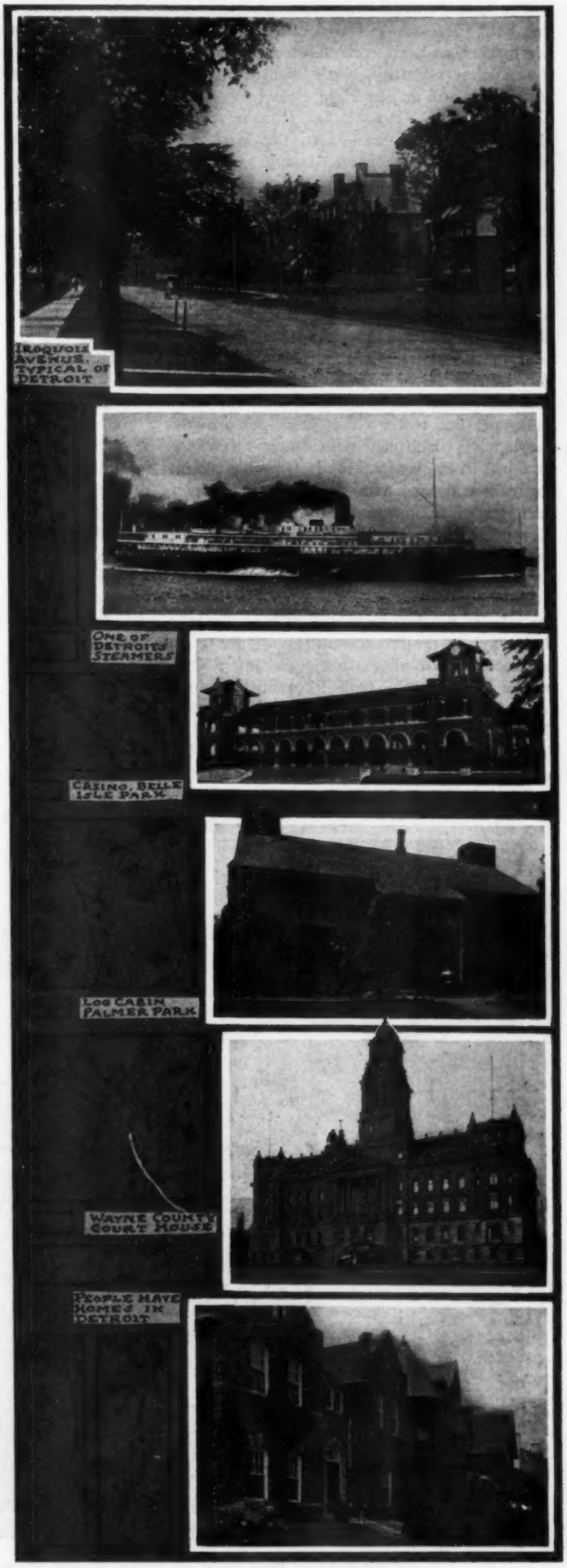
Will Have Entree of the Big Auto Plants.

The Gliddenites and others who gather here at that time will be given entrée to all these factories, affording them an insight into the magnitude of the industry and what the production of a high-grade automobile involves that they have hitherto lacked.

Motor enthusiasts will find at the Packard Motor Car Company's plant the most complete institution of its kind in America, if not in the world. A stockholder once facetiously remarked that just as often as they got a few dollars ahead orders were placed for a fresh supply of building materials and began an addition to the factory. This isn't quite true; if it was they would be building all the time. However, not a year passes without extensive additions to the plant that, even to the experienced, seems sufficient for all time to come, and which now embraces something like eighteen acres of floor space. It isn't that the Packard Company produces so many cars. It's output this season will be around the 2,000 mark. But—"ask the man who owns one"—it is the infinite care expended on every detail, and the fact that the car in its entirety is made under the Packard roof, that requires such facilities.

The Cadillac Motor Car Company is another concern that manufactures automobiles instead of making them, a distinction too often overlooked. The Cadillac plant is one of the wonders of the automobile world, and it will turn out some 9,000 cars.

There is the Ford Motor Company, pioneer in the low-priced medium-power field, and one of the largest producers of automobiles in the country. Just now every energy is being bent toward getting into its fine new plant at Highland Park, a suburb of Detroit, but in spite of the handicap of attempting to run two places at one and the same time the Ford Company will this season turn out something like 20,000 cars.


IROQUOIS AVENUE. TYPICAL OF DETROIT
ONE OF DETROIT'S STEAMERS
CASINO, BELLE ISLE PARK
LOG CABIN PALMER PARK
WAYNE COUNTY COURT HOUSE
PEOPLE HAVE HOMES IN DETROIT

The E-M-F, which since its organization, less than a year ago, has kept the trade guessing, and which will this season put on the market, and sell, some 8,000 of the popular "E-M-F 30" cars; the Chalmers-Detroit, with one of the best equipped plants imaginable and an output in excess of 3,000 cars; the Blomstrom Gyroscope, the Regal, Brush Runabout, and Hereshoff, one of the most recent additions to the local colony, but which has already achieved pronounced success; the De Luxe, and nearly a score of lesser lights, are numbered among the concerns that are making Detroit famous and providing the country with automobiles. One can obtain luxury or practice economy.

Detroit Has Many Notable Attractions.

But it will not be necessary for Gliddenites to confine their attentions to automobiles, nor is it the intention of those in charge of the arrangements that they shall. Detroit has no peer in the matter of attractions. If there were nothing else, the Detroit River has given the city world-wide fame as a summer resort. Forming as it does the connecting link between the upper and lower Great Lakes, it provides a marine pageant the like of which cannot be found elsewhere. Here during the months when navigation is possible, giant freight steamers carrying trainload after trainload of iron ore destined for the furnaces of Ohio and Pennsylvania and grain for Eastern and European mills, or bearing coal and general merchandise for the thriving cities and farming communities of the Northwest, pass Detroit on an average of 10 minutes apart, day and night.

Belle Isle, situated in the Detroit River at the eastern end of the city, is the finest natural park in America. From the shady driveways or the broad verandas of the Casino there is afforded an unobstructed view of the passing fleets, with Detroit, half hidden in the smoke from its multitudinous factories, stretching for miles along the river, while in the opposite direction are the broad waters of Lake St. Clair, with the Canadian shore, dotted by summer homes, in the distance. Nature dealt leniently with Belle Isle, and a thoughtful municipality has supplemented its efforts in providing a beauty spot that outranks all others in the city where life is worth living.

There is practically no limit to the charming rides that can be taken in the vicinity of Detroit. Grosse Pointe, with its miles of macadam roadway, with Lake St. Clair on one side and "Millionaires' Row," the summer homes of Detroit's kings of finance, on the other, with the magnificent Country Club and golf courses, is one of the most popular points. You can motor out through Oakland County, up hill and down dale, in among the scores of little lakes that dot the district, or take a run to the home of the Detroit Auto Club, at Pine Lake, where every courtesy will be extended the Gliddenites. For a nominal sum the motorist who so desires can "go abroad," crossing the river, and upon the execution of a bond and the payment of a small license fee being permitted to spin—not speed, for such things are not tolerated across the border—along the "king's highways" in Canada.

Forsaking the auto for even a few hours, it is possible to board a palatial steamer and for an insignificant sum enjoy a cruise through the St. Clair Flats, the Venice of America, or, traveling in the other direction, witness from the deck of the steamer a marine parade that has no equal, passing on the way to Bois Blanc Island and other down-river resorts, the Hellgate of the Great Lakes, the Limekiln Crossing, upon which the United States government has spent upward of $6,000,000, and where the greatest engineering undertaking of its kind in the world is now in progress, involving the expenditure of another $6,000,000 in cutting in the dry a channel through miles of rock.

Headquarters for the Gliddenites will be at the Hotel Pontchartrain, but they will also be given full sway at the Hotel Tuller, home of the Detroit Auto Dealers' Association, and the other hostelries with which Detroit is so liberally provided. Arrangements for the entertainment of the visitors are proceeding apace, it being the determination of the D. A. D. A., the Board of Commerce, the local auto manufacturers and others to make the occasion a memorable one.

Fifth Avenue, New York, on Easter Sunday Illustrated the General Use of Motor-Driven Vehicles.

EIGHT CLASSES ARE PROVIDED FOR BY M. C. A. RULES

EIGHT classes have been provided for by the rules committee of the Manufacturers' Contest Association, and five of these are according to piston displacements with minimum weight limits. The results were first the work of the special rules committee, selected from the general committee of twenty-five, and these were the men who struggled with the knotty problems: H. E. Coffin, Chalmers-Detroit Motor Car Company, chairman; A. L. Riker, Locomobile Company of America; George A. Weidely, Premier Motor Manufacturing Company; F. B. Stearns, The F. B. Stearns Company; Edgar Apperson, Apperson Brothers Automobile Company, and Paul LaCroix, Renault Freres Selling Branch.

The result of their work was then referred to the committee of twenty-five, which now officially announces through Secretary Russell A. Field what has been recommended to the contest board of the American Automobile Association, the adoption of which is foreshadowed in advance. The price classification of the American Automobile Association was readopted, with the stipulation that it apply to stock car events, making the complete classifications recommended for 1909 as follows:

Piston Displacement in Cubic Inches.	Min. Wght. in Lbs.	Class.	Price.
.....	....	8	Special
.....	....	7	Open
.....	....	6	$ 850 and under
160 and under	1,200	5	851 to $1,250
161 to 230	1,500	4	1,251 to 2,000
231 to 300	1,800	3	2,001 to 3,000
301 to 450	2,100	2	3,001 to 4,000
451 to 600	2,400	1	4,001 and over

Other changes were recommended, including the designation of a stock car, the new rule for which will read as follows:

STOCK CAR.—A motor car completely described in the manufacturer's catalogue for the current or any preceding year, which is manufactured in quantities of 25 or more, which is on sale by the regular selling representatives of the manufacturer and is manufactured ready for delivery to buyers. Top, wind shields, and extra tires may be removed. The muffler cut-out is optional.

In reference to stock chassis, the present clause reads:

STOCK CHASSIS.—A chassis, which without any changes whatsoever, except that lighter read springs may be used, can, by adding the necessary parts, be assembled into a complete stock car for which it is designed.

To it was added the following:

Vehicles for stock chassis races must be the product of a factory which has, during the twelve months prior to the date of the event, produced at least fifty (50) motor cars regardless of model. The A. A. A. minimum weight clause, with an allowance of 2 per cent., will govern. It is further provided that additions to the oil and fuel supplies, a change of steering gear angle of driving gear ratio and of tire and rim equipment are left optional with the entrant.

It was unanimously voted to recommend to the Chicago Automobile Club that its race for the Cobe Cup and the small car event to precede it both be for stock chassis and held under piston displacement classifications.

In the final adoption of the classes nearly every member of the general rules committee took part in the discussion. There were present at the meeting: Edgar Apperson, Apperson Bros. Automobile Company; A. P. Brush, Buick Motor Company; H. E. Coffin (chairman), Chalmers-Detroit Motor Company; C. H. Tangeman, Hol-Tan Company; C. M. Hamilton, Isotta Import Company; H. G. Farr, Knox Automobile Company; A. L. Riker, Locomobile Company of America; H. A. Lozier, Jr., and C. A. Emise, Lozier Motor Company; Benjamin Briscoe, Maxwell-Briscoe Motor Company; Alfred Reeves (proxy), Mitchell Motor Car Company and National Motor Vehicle Company; R. H. Croninger, Pennsylvania Auto Motor Company; E. P. Chalfant (proxy), Pierce-Arrow Motor Car Company; G. A. Weidely, Premier Motor Manufacturing Company; Paul Lacroix, Renault Freres Selling Branch; F. B. Stearns, The F. B. Stearns Company; F. A. Barker, Dayton Motor Car Company; Walter White, The White Company; E. Lillie, Itala Import Company.

CHICAGO'S TWO ROAD RACES ARE DEFINITELY ANNOUNCED

CHICAGO, April 12.—The sanction for the road racing carnival of the Chicago Automobile Club, June 18 and 19, has been granted by Chairman Hower, of the A. A. A. contest board, the local promoters having complied with all requests as to military protection, permission to use the course, and the financing of the events. In addition to this the A. A. A. chairman has permitted the Chicago club to modify the classifications of the Manufacturers' Contest Association because of the fact the new rules were designed mostly for 1910, while the Chicago events were outlined before the birth of the new organization.

Under this special dispensation the contesting cars for the Cobe trophy will be limited to a piston displacement of 525 cubic inches, while the weight limit has been reduced from 2,400 to 2,150 pounds.

The club has accepted the classification of the M. C. A. for the other event, which will be for light cars instead of being a "baby" race such as was run at Savannah. In this the piston displacement limit will be 300 inches, while in the way of a concession the weight limit has been knocked off entirely.

Probably the greatest triumph achieved by the Chicago Automobile Club is the securing of troops to guard the course, something unheard of heretofore outside of Georgia. The most remarkable part of it, though, is that permission has been given to take Illinois soldiers into Indiana for this purpose, the First Regiment of the Illinois National Guard having been secured for police duty. A camp for the troops will be established near the starting point, which will be on the east leg of the course about a mile and a half from Crown Point. The signal corps of the regiment will run a military wire round the course, and the hospital corps will be on duty with all its paraphernalia, for ready duty.

Entry blanks for the two road races will be out this week, and of course no time will be lost in placing them in the hands of the manufacturers, most of whom seem eager to give the race strong support. The fees have been placed at $500 for the first car, $300 for the second, and $200 for the third, both races to count in the total number. The classifications for the two races are as follows:

Cobe Trophy Race, June 19.—Open to stock chassis of 1909 models or earlier, of which ten have been built, and 1910 models, of which the parts for ten are on hand at the factory of entrant prior to June 1, 1909, manufacture of same to have commenced. The entrant is to furnish affidavit proving the eligibility of the entry under above conditions, and is to furnish a bond of $5,000, made payable to the treasurer of the A.A.A., which bond is to be forfeited to the A.A.A. in the event of the entrant failing to construct ten cars according to his affidavit, said cars to be completed on or before October 1, 1909. This race will be approximately 410 miles in length, cover a 24-mile circuit over the public highway. Minimum weight of chassis, with tanks empty, 2,250 pounds; maximum piston displacement, 525 cubic inches in the whole engine.

Light Car Race, June 18.—Open to stock chassis under same conditions as the Cobe trophy race as to number of models built, etc., but not to have over a maximum piston displacement of 300 cubic inches in the whole engine. No weight limits imposed.

Optional Construction.—All must be stock except: Extra gasoline and oil capacity, no change in principle; any angle of steering column and gear; any gear ratio of driving system; any tire and rim equipment.

CONTESTS OF THE CHICAGO MOTOR CLUB.

CHICAGO, April 22.—An endurance run for cars listing at $1,750 and under is planned for next month by the Chicago Motor Club, which to-day announced its card for the coming season. The opener will be a novelty in that it will be the first time special attention has been given to the popular-type car such as is represented in the division up to $1,750. It will be a most thorough test, too, it being the idea of the club to ask the cars to go at least 500 miles in two days, fully as stiff a schedule as was used in the 1,000-mile four-day affair last fall. No exact route has as yet been mapped out nor have the rules been adopted, but the technical committee expects to have the regulatons in shape for publication the latter part of the week.

In addition to this the Motor Club will stage its annual reliability for all classes between September 10 and October 30 at a distance not less than 1,500 miles. Last year the cars traveled 1,000 miles in four days. The annual hill-climb will take place as near August 14 as possible, and again the hills at Algonquin, Ill., will be used. Other events also are planned. One of them will be a skidding test and the other a taxicab demonstration. No dates have been set as yet for these two.

SAVANNAH'S HOPES TELL UNPRINTED STORY.

SAVANNAH, GA., April 8.—That Savannah is depending upon getting the next Grand Prize race can be seen from the work that is being done on the course.

If Savannah is successful in landing the next race, the drivers will find a complete new race course. Instead of having sixteen turns to make they will have only seven, the turns at Isle of Hope being cut out.

Ferguson avenue, which drivers claim to be the fastest section of the course, has been made 60 feet wide, with only an 11-inch grade from one end to the other, and it will be more than five miles long and will save from eight to ten turns. Seventy more convicts have been put to work on the course, these coming from different parts of the State.

AUTOISTS TO CELEBRATE OPENING OF BRIDGE.

NEW YORK, April 12.—Automobiles will take a very prominent part in the celebration of the formal opening of the new Queensboro Bridge. The week of June 12 will be taken up with various festivities, and Tuesday, June 15, and Thursday, June 17, will be given over to automobile sports. The plans call for a non-technical touring contest on Long Island on Tuesday, embodying some new features; and on Thursday a parade of decorated cars across the structure for three prizes, and a cash prize as a refund for the cost of decorating the winner. A committee has been appointed, of which A. R. Pardington, second vice-president and general manager of the Long Island Motor Parkway, Inc., is chairman.

NEW YORK PREPARES FOR CARNIVAL.

NEW YORK, April 12.—But ten days now remain before the beginning of the second annual carnival of the New York Automobile Trade Association, and dealers, owners and many others interested are making active preparations for the various events. The entry blanks for the hill climb and other contests will be issued at once, and the lists of those who have applied for the necessary blanks is evidence of the numbers which will enter. The voting for the king and queen has become spirited, and thousands of ballots have been cast. Arrangements for the parades, the dinner, the smoker and other festivities are nearly completed. The entire week of April 26 to May 1 will be used.

CLEVELAND TO HAVE DECORATION DAY CLIMB.

CLEVELAND, April 13.—The Cleveland Automobile Club announces that its climb of the Gates Mill hill will take place on Decoration Day.

ECHO OF STATEN ISLAND SPEED TRIALS.

NEW YORK, April 12.—An echo of the automobile race on the West Side boulevard, Staten Island, held under the auspices of the Automobile Club of America, on May 31, 1902, was heard on last Thursday when Judge Stapleton in the Supreme Court opened a sealed verdict of $2,500 against the city of New York. The suit for $10,000 was brought by Mary Bogart, wife of John T. Bogart, a spectator who was killed by the fast Baker electric, but the case was never settled until last week.

SEMI-ANNUAL REPORT OF ELECTRIC VEHICLE CO.

HARTFORD, CONN., April 12.—The semi-annual report of the receivers of the Electric Vehicle Company, Halsey N. Barrett and H. W. Nuckols, filed with the Superior Court shows a balance of $151,356.13. Sales and charges on account for the period amount to $215,485.91, with purchases of $187,692.26. Under disbursements, the heaviest item was the pay-roll, which amounts to $160,762.03, materials cost $128,656.46, while the A. L. A. M. is credited with $118,992.64. George B. Selden is credited with $17,492.86.

VANDERBILT RETURNS FROM EUROPE.

William K. Vanderbilt, Jr., the donor of the famous cup bearing his name, and president of the Long Island Motor Parkway, Tuesday returned on the *Kronprinzessin Cecilie* from his Spring European trip. Mr. Vanderbilt declined to have anything to say to the daily newspaper interviewers, but expressed the intention of remaining in this country for the next eight months. Of course, he will give much attention to the completion of the Motor Parkway, and it would not be surprising if a race were arranged for the famous trophy, to take place as usual in the Fall.

CLEVELAND IS BUSILY SATISFIED.

CLEVELAND, April 13.—"How's business?" "Never knew it to be better." That's an almost daily conversation in the trade in Cleveland. From the agents of high-priced cars down to those selling machines for $600, and from the largest dealers in accessories to those selling automobile grease on a commission the answer is the same. Business is good in all lines, and the trade is rejoicing as a consequence. The few warm days that Cleveland has experienced have served to start the automobile fever coursing up and down the veins of local motorists, and the stimulus mentioned is the result.

All the local factories are busy, some day and night, while the same condition holds true in many agencies.

SEATTLE PATHFINDER REACHES COLORADO.

Snow and bad roads have hindered the Thomas car which is laying out the route for the endurance contest from New York to Seattle, but Tuesday evening the crew succeeded in reaching Denver. They were delayed by the conditions at a number of places on their run from Kansas City, and were unable to reach Pueblo on account of the deep snow. It is expected that the party will leave Denver to-day for Cheyenne or Laramie, Wyo., and strike the roads toward the Northwest.

Kansas City was left last Thursday morning, and across the State enthusiastic receptions were met, automobilists and farmers joining in the celebrations. An impromptu reception was accorded the transcontinental travelers at Fort Riley and checking stations were established at a number of places. Pilot cars have been accompanying the Thomas since leaving Missouri and will probably be picked up from day to day.

President Taft has accepted the invitation to press the button which will give the signal to Mayor McClellan, of New York, to start the contestants by firing a golden revolver now being made for the purpose. Up to the present, four entrants have been announced, a Simplex, a Stearns and two Ford cars being listed. Henry Ford surprised the trade with the statement that he will enter two of his model T cars.

Maxwell Completes 10,000-Mile Non-Stop Record Run

Official Starting of the Non-Stop Performer in Front of the Bay State A. A. Clubrooms, March 18.

BOSTON, April 12.—At 10:10 o'clock this morning the autometer on the Maxwell touring car that on March 18 began a 10,000-mile non-stop motor run ticked off the last fraction of a mile necessary to make the 10,000 total, and a new record for such a test had been established. The completion of the 10,000-mile total came when the car was near Framingham on the return journey from South Framingham. On board the car were the three drivers who have been at the wheel during the past twenty-five days, C. E. Goldthwaite (who was driving), Arthur See and Ellery Wright, and with them was Charles J. Glidden, of globe-girdling fame. On the car flew an American flag, which was given the car just before it began its last trip by Mrs. Charles J. Glidden. The flag was one which Mrs. Glidden obtained while in Japan on the last motor trip which she and her husband made to the East.

The finish of the 10,000 miles came a little earlier than had been anticipated, the official reception having been arranged for 4 o'clock in the afternoon. On this account the motor was not stopped, but was kept in motion and the car was run about through the suburbs until this afternoon, when the reception incidental to the official completion of the run was held. At 4 o'clock in the afternoon a large number of motorists, including nearly one hundred owners with their Maxwell cars, drove out to Coolidge's Corner, Brookline, about three miles from the city, and there met the car and escorted it into Boston, the procession moving over Beacon street and along Automobile Row, on Boylston street, to Copley square. There, at 4:21 o'clock, in the presence of a large crowd of people, Lewis R. Speare, president of the American Automobile Association, who started the motor on March 18, brought it to a stop.

The autometer then showed 10,074 4-5 miles. The car was at once turned over to a technical committee consisting of Professor Parks, of the Massachusetts Institute of Technology; Secretary James Fortescue, of the Bay State Automobile Association, under whose auspices the run was conducted; V. C. Charles, manager of the Inter-State agency, and C. J. Bailey. This committee is to take down the car, make a thorough examination of all parts, and present its report later.

To complete the 10,000 miles' run the car was engaged just 600 hours 10 minutes consecutively, and all that time, with the exception of the few hours required in the stops to change drivers, take on supplies of gasolene and oil, change tires, and make a few repairs, the car was in motion, averaging while on the road between 18 and 20 miles an hour.

A total of 679 gallons of gasoline was put in the tank, and 388 3-4 quarts of lubricating oil was used. When the car had been running a little more than a week there was trouble with the off rear bearing, and this was repaired, but owing to the damage that had been done by the broken bearing it was necessary last week to put in a new rear axle. This was the only repair of importance made during the run. One spark plug was replaced and one of the push rods on the motor which showed an imperfection was changed. Toward the end of the run the muffler fouled, and it was necessary to do some work on that.

The nearest the motor came to stopping was a few days from the end of the test, when the wires supplying the electric light over the speedometer short-circuited with the wires from the batteries. Fortunately this accident did not interrupt the current from the magneto and the motor did not balk. Though the ignition system was reinforced at the beginning of the run, only the magneto was used while running on the road.

The tire record of the car was remarkable, for in the 10,000-mile trip only eight tires were used, the second set being in good condition at the finish. One of the original shoes was used until the car had been driven about 7,200 miles, and then it blew out. That was the only blowout. There was a small number of punctures comparatively, and they occasioned little delay, for the tires were on demountable rims and inflated tires were carried on the car at all times. Except when the car was in the garage for the work that was done on the axle, and the motor

Justice of the Peace Teele Swearing In the Drivers and Observers of the Non-Stop Run.

consequently was running for some time without a load, it was unnecessary to change or add to the water in the radiator.

The car was driven with care all the way through and the men at the wheel were experienced operators of Maxwells. A high-test gasoline was used and a high grade of oil. With these exceptions and the reinforced ignition system that was not used, the conditions of the run were similar to ordinary operation. No private owner's car, of course, would be subjected to such a test as the constant running of the motor for twenty-five days, and it is figured that the distance covered is at least twice that made in a year by the average owner. The constant vibration of the steady running motor showed its effect toward the end of the test in the breaking of several spring leaves. It was found that the vibration had brought about crystallization of the metal.

The run created a vast amount of interest all through New England, and as Frank J. Tyler, manager of the Maxwell-Briscoe Boston Company, issued a general invitation to people to ride in the car there were few day trips on which there were not one or two passengers. The day and night running was exceedingly trying on the drivers and observers, though there were three shifts, and they were pretty thoroughly tired out this afternoon. They were able, nevertheless, to accept the invitation of Sales Manager Kelsey and the Maxwell company to a dinner given them this evening at the Bay State Automobile Association rooms.

The run began at 10 o'clock in the forenoon of March 18 in front of the quarters of the Bay State Automobile Association, when Mr. Speare cranked the motor. During the first few trips, and when changes of route were made, the car was driven by Lucius S. Tyler, Ralph Coburn and William S. Simonds, of the Boston branch of the company. At other times the car has been piloted by Goldthwaite, See and Wright, of the Maxwell-Briscoe factory force. The official observers were Adam Schneider, Joseph George and C. F. Lawrence. All drivers and ob-

During the first week of the test, in which about 3,000 miles were covered, the car shuttled back and forth between Boston and Worcester. The weather was generally good, and the roads used excellent. On March 25 the route was changed to Providence, and the first night out a bad storm was encountered. The hood was carried away in the wind, and the driver and observer had to repair a puncture in a downpour of rain. The Providence route was followed for five days, bringing the total mileage to about 4,900. Then the car was shifted to Newburyport route, and for three days it was driven back and forth between Boston and that city. April 2, 3 and 4 the car went to Nashua, N. H., and since then it has been running between Boston and South Framingham.

The non-stop performer was fitted with Ajax tires and Continental demountable rims; utilized Splitdorf magneto and spark plugs; its mileage and speed were guaranteed by Stewart and Warner speedometers; and its lubricators were Havoline crystal oil and Keystone grease.

MAXWELL DRAWS THE CAMPBELL TROPHY.

New York, April 12.—At a luncheon given by L. H. Perlman, the first winner of the Chester I. Campbell touring trophy, Friday, at the A. C. A. clubhouse, Carl W. Kelsey was the successful one in the drawing between the 15 perfect score contestants, and becomes the owner of the valuable cup. The lots were drawn by a disinterested person under the supervision of Referee L. M. Bradley, and the last one drawn, No. 20, was that of Mr. Kelsey. Mr. Campbell, the donor, J. K. Mills and T. F. Moore, the managers, were present, and all of the fifteen either in person or by proxy.

Those at the luncheon were: C. W. Matheson, two Matheson cars; Guy Vaughn, Stearns; M. P. Batts, Stearns; H. A. Street, Cadillac; L. B. Le Duc, Cadillac; A. B. Cordner, Acme; W. W. Burke, Mora; J. I. Miller, Cleveland; V. P. Pisani, Zust; Paul Lacroix, Renault, and C. W. Kelsey, Maxwell. Those represented by proxy were: C. S. Carris, Franklin; Ray McNamara, Premier, and Albert Dennison, Knox.

PIERCE-RACINE MAKERS INCREASE CAPITAL.

Racine, Wis., April 12.—Articles of incorporation have been filed at Madison for the Pierce Motor Company, of this city. The capital stock is $300,000, and Charles McIntosh, A. J. Pierce and Frederick Robinson are the incorporators. Mr. McIntosh and Mr. Robinson are heavily interested in, and at the head of, the J. I. Chase Threshing Machine Company, of this city. Mr. Pierce has been for four years at the head of the Pierce Engine Company, and was one of the first builders of gasoline engines in the United States.

The company will take over the entire assets of the Pierce Engine Company, enlarge the plant, and push the sale of Pierce-Racine automobiles, motor boats and motors. Pierce-Racine automobiles are better known in the West than in the East, for the output has always been limited, although Mr. Pierce built his first one in 1893. The marine engines and boats, however, are well known all over the world.

The new corporation starts out under very favorable circumstances; the shops are running with a full force, on full time. There is no liability, and with ample working capital the building of 500 cars will be started at once. The line will consist of one five-passenger car listing at $1,500, one five-passenger car listing at $1,250, a runabout and a roadster.

GIVES KNIGHT-DAIMLER STRENUOUS TEST.

Coventry, England, April 3.—A decisive answer to critics of the new Knight-Daimler slide valve engine has been given by the long endurance trial of two standard engines which has successfully ended to-day. The form of the trial was decided on by the technical committee of the R. A. C. and consisted, first of all, of a continuous full speed run on the test bench for 132 hours, the power developed on the brake not falling below 1.3 times the R. A. C. rating of the two engines, which were standard 22 horsepower and 38 horsepower types.

At the conclusion of this run the engines were erected on cars without any adjustment being permitted, and a distance of 2,000 miles was covered at Brooklands at a speed average of 40 miles an hour. A final run of five hours on the test bench and subsequent examination of the parts by the judges completed the trial. The Daimler company has challenged any other maker to equal this record and have staked $1,250 with the R. A. C.

CONCERNING THE USE OF A PHOTOGRAPH.

Our attention has been called by the Rushmore Dynamo Works to the fact that the photograph appearing in the advertisement of another lamp manufacturer on the back cover of the April 1 issue was made with Rushmore lamps, not with the lamps advertised, as might be inferred from the use of the photograph in that connection. We have learned that this photograph is one of several taken by a Plainfield motorist last fall and that it is copyrighted in the United States and has been authorized for publication only in *The Car*, of London, from whose pages it was reproduced without inquiry as to its source.

In justice to the concern referred to, we must further state that the advertisement originated solely in the art department of this office. The night scene was reproduced from *The Car* for its pictorial qualities, which were recognized to be very exceptional, and with no suspicion that it had originated so near home.

ELKHART CO. MAKES PRATT MOTOR BUGGY.

Elkhart, Ind., April 12.—The Pratt Motor Buggy is the newest output of the Elkhart Carriage & Harness Manufacturing Company, of this city. The machine is constructed with an air-cooled engine of sufficient power to propel the car at a rate of from 25 to 30 miles an hour. The firm has been experimenting for many months with various types, and has given the one adopted a thorough testing on the roads before announcing its manufacture.

Automobile Gasoline and Other Available Fuel

Part I

By Thos. J. Fay

THE amount of gasoline that should be provided will depend upon the design of the car, in any given case, and the motor used. As a concrete example of general practice the following will hold, viz.: (a) single-cylinder motors in runabout types, 5 gallons; (b) double-cylinder motors in light cars, 10 gallons; (c) small four-cylinder motors in roadsters, 15 gallons; (d) light touring cars with four-cylinder motors, 20 gallons; (e) standard touring car work with four-cylinder motors, 25 gallons; (f) the largest sizes of cars with six-cylinder motors, 30 gallons of gasoline.

Radius of Travel of Cars.—Taking the gasoline as above allowed it is an approximation of the situation to say that all the cars will have the same radius of travel, although the following is more nearly in accord with the results obtained in actual practice under average conditions:

NO. CYLINDERS.	MILES PER GALLON.
1	30
2	20
4	15
6	10

There are wide deviations from the above, nor can the differences be ascribed to cylinders alone. The six-cylinder motor, although it apparently uses more gasoline, is generally placed in high-speed cars and the weight, as well as the front area (causing a large wind resistance result) all go toward an increased gasoline consumption. The four-cylinder types of cars, some of which are heavy and go fast, use gasoline in quantity, all the way from 9 up to 18 gallons, considering the best results. The average two-cylinder car will not do quite so well as the table shows, and the one-cylinder car would have to be in fine shape to run on 30 gallons.

At all events it is well to have a good supply of fuel on hand, and in order to avoid annoying interruptions of service it is recommended that some means of determining the rate at which fuel is used be provided. There are a number of devices available for the purpose of showing the gasoline level in a tank, at will, and Fig. 1 shows the design of a tank so contrived that only half of the gasoline can flow to the carbureter without opening a second valve. This tank is usually made of cornice copper, the weight of which should be on a basis of 20-ounce copper for the ends and 16-ounce copper for the shell. The baffle plates can be of the lighter material, although they are generally made of the same weight of copper as the heads. As the section, Fig. 1, shows, the baffle plates *H* and *H* are shaped the same as the heads, and, unlike the heads, they are provided with holes of a good size so that the gasoline can find a level equal in all the compartments. The heads, *I* and *I*, are dished outwards and the hangers should be with a considerable surface, so that they will not tear out at the rivets.

Gasoline is put into the tank through the filler, of good size, *F*, and the cap *G* should be so devised that it may be screwed down tight against a leather packing washer. This material is the best packing to use; rubber will not do at all. If the tank is fed with pressure to furnish the means by which the gasoline is forced into the carbureter the cap *G* must be tight or else the pressure will ooze out. If the gasoline is fed by gravity, a vent hole (about 1-32 inch in diameter) must be allowed for in the cap *G* or elsewhere in the tank, the function of which is to equalize the pressure.

If pressure is fed to the tank, which pressure usually comes from the combustion chamber of the motor, it should be brought in through the pipe *K* and to the bottom of the tank in order that the "spent" products of combustion will be cooled by the liquid, and if there is any flame it will be quenched in the liquid. It is a safety measure to so lead the pressure into the tank, and it will also be prudent to put a screen over the end of the pipe just before it enters the tank.

The gasoline is brought to the carbureter through the pipe *L* and is controlled by the valve *B*. When one-half of the gasoline is used the pipe *A* prevents the flow of any more fuel through the valve *B*, in to the carbureter pipe *L*, so that it will be necessary to open the valve *D* in order that gasoline will flow through the pipe *C* into the carbureter pipe *M*. The carbureter pipe *M* can be joined to the pipe *L* at any convenient point or it would be a good idea to have both pipes lead to the carbureter.

The piping should be large (say, 3-8-inch hole) and of annealed copper. The joints should be limited to necessary terminals and junctions, but all joints should be ground. There are divers forms of fittings to be had, and the joints can be made tight in all of them in which soft packing is not used. In pressure systems especially, it is of the greatest importance to

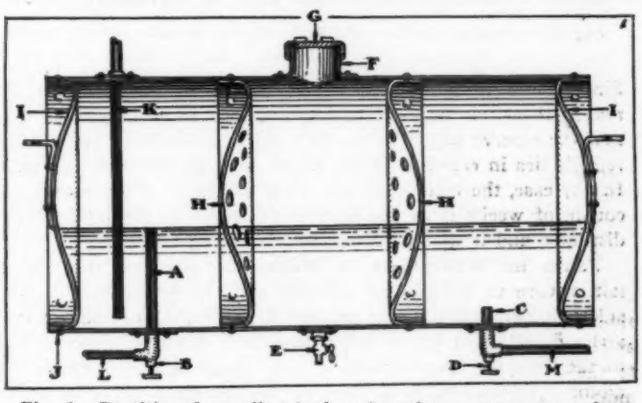


Fig. 1.—Partitioned gasoline tank entrapping a reserve supply.

have secure, as well as tight, joints, for the reason that it is extremely difficult to repair trouble of this nature on the road. The motor will not run without gasoline, and in a pressure system the gasoline will not run up-hill to the carbureter, hence the pressure must be prevented from oozing out through leaky joints, some of which are tight when a car is not in use, but owing to design will not stay tight when vibrations are introduced.

If the piping is small the chances are that "jelly," which forms out of the contents of the gasoline, will be the source of much trouble, and in the cars, such as use small-diameter piping, the same should be so placed that it can be removed and blown out quickly, and on the road. Even in systems using large piping, if the joints are constricted they will be the cause of the same kind of trouble, with even a chance of the trouble being more acute on the ground that the jelly will form more readily at constricted points.

Water in the Gasoline.—Even if the gasoline is strained through a chamois skin when it is emptied into the tank, if the same is with a vent hole, as required in the gravity-feed system, water will make its way into the tank; moreover, it seems almost impossible to keep water out of the tank whether or not the system is of the gravity-feed genera. At all events the water is a source of annoyance in more ways than one in that if the tank is of steel, rust may form on the bottom, which is the natural resting place for the water. In any event, no matter what material is used in the make-up of the tank, water will not burn, under the conditions in which it is placed in the gasoline tank, and it will interfere with the carburetion to a marked degree.

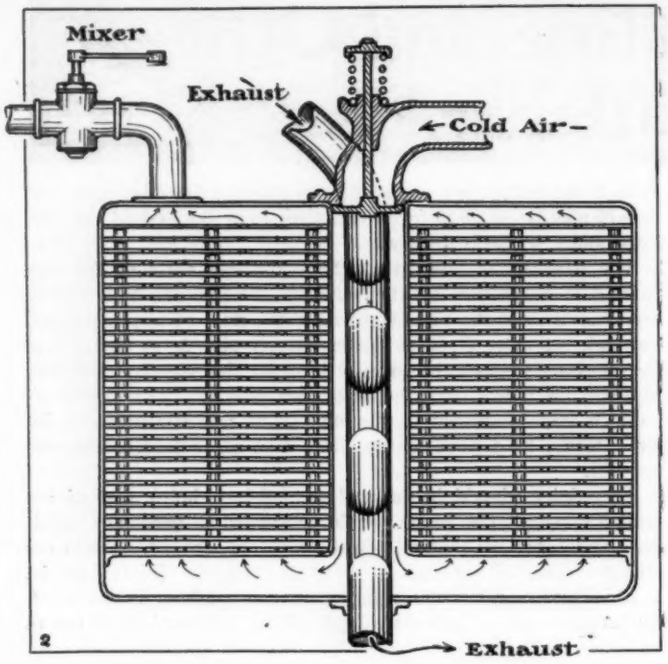


Fig. 2.—Gasoline tank in which the liquid is vaporized by heat.

Since the water will settle to the bottom of the tank—for the reason that it is heavier than gasoline—it is generally the case that the reserve supply is not as good as it ought to be, and the remedy lies in running off the water, through the cock *E*, Fig. 1. In any case, the residuum after a car has been on the road for a couple of weeks is of the heavier fractions of the hydrocarbon distillate, and it should be removed from the tank.

Tanks in Which Gas Is Made.—In view of the uncertain nature of automobile gasoline and the presence of a considerable percentage of the heavier distillates, the ordinary means at hand fall short of the full requirement when reference is had to the complete vaporization of the liquid before it enters the motor cylinder. With a view to the complete vaporization of the fuel before it enters the motor cylinder the gas-producing tank, Fig. 2, is used to quite some extent, and it promises to be a large factor in the future. In this plan, the tank is filled almost completely with wood-fiber boards, superimposed, but slightly separated, so that the greatest possible surface is offered to the hot air as it is drawn through the pile of boards, in which holes are provided for the purpose. The air is taken in through an orifice at the top of the tank, leading to a jacket which surrounds the heater to the bottom and thence upward. The heater itself is devised in a manner not unlike an ordinary radiator, and since the exhaust gases from the motor pass through the heater, the air is adequately heated for the purpose.

The capacity of such a tank is about 55 per cent. of the capacity of the same sized tank, in which no boards are placed. In other words, "voids" in the wood-pulp boards will foot up to about 45 per cent., and the free space makes up the balance. Once the voids in the boards are filled with gasoline, nothing besides can enter, so that there is no danger of an explosion, even when a naked flame is applied to the openings in the tank. True, the mixture, in the space not filled with pulp, could be made "lean" enough to ignite, but it is ordinarily so rich that it will not burn at all. In view of the small amount of space, not filled with pulp, the volume of gas that would be available, assuming it were reduced in richness to the point where it would burn, would not be enough to do damage. In every two-cycle motor mixture is in the crankcase, and the same is rich enough to ignite, as a rule. "Crankcase shots" are not only possible, but they do occur, and what is more to the point, they do no damage. It will be remembered that the compression is but slight in the crankcase of a two-cycle motor, which accounts for the lack of vigor of the burning mixture, but it is a significant fact that the pressure in the crankcase is more than that which obtains in a gas generator, as shown in Fig. 2.

Economy follows the use of any means by which the gasoline is vaporized completely before it enters the cylinder, and carbon formations are aborted. If, then, the gasoline can be vaporized before it leaves the tank there will be ample time for the excesses to condense and the mixture, properly diluted with air, will be suitable for the purpose, taking into account the best results, in which a homogeneous gas, free from liquid, is the more nearly perfect. In the form of fuel holder, Fig. 2, the rich gas passes from the tank to a mixing valve, the function of which is to alter the proportion of air to rich mixture, at the will of the driver, and according to the road condition, or better yet, the speed of the motor. If the motor is to run at high speed, the amount of air should be increased if a carbureter is used, for then the gasoline will be sucked out in greater proportion and the mixture will be enriched in excess unless air is added sufficiently to dilute the same enough to offset the gasoline increase. With the generator, Fig. 2 (gas tank), the reverse holds to some extent, in that the gas will become lean if the amount of gas passing over is increased enough so that the surface available is relatively deficient, as it will be after a certain point in the process. The mixing valve regulates for all these differences, and the motorist adjusts the same in proportion to the needs without having to consider the source of the variable.

In view of the ability of the generator to deliver a gas rather than air with globules of gasoline entrained, Fig. 3 will serve to illustrate a point that ought to find a residence in the mind of any autoist who expects to drive his own car and be awarded a due measure of pleasure or profit. Referring to Fig. 3, *A* represents a gas in which the air is in excess with the result that the phenomenon known as popping in the carbureter transpires. This mixture is quick-burning, due to excess oxygen, and the intake valves, which are generally set to open with a small difference in time, before the opening of the exhaust valves, open too soon for a mixture of this sort. In some motors the intake valves open before the exhaust valves close, and in such cases, especially at low crankshaft speeds, popping in the carbureter is prone to happen.

To avoid this popping it is necessary to enrich the mixture, which is done by allowing less air to pass through the air-port of the mixing valve, and the condition depicted in *B*, Fig. 3, will follow. There is an entire absence of liquid gasoline, just as in *A*, the essential difference being in the ratio of air to rich mixture. In this case, the motor should be able to deliver power at a high speed, and the relation of gasoline to air should be about that due to 8,000 volumes of atmospheric air to one volume of (liquid) gasoline. The condition in *A* will be about on a basis of 10,000 volumes (or slightly under) of atmospheric air to one volume of (liquid) gasoline. As the motor slows down the auxiliary air must be adjusted, primarily to suit the gasoline ratio, and in order to enrich the mixture if it happens to be the desire to slow the motor down to suit road conditions rather than to carry a heavier load. Enriching the mixture will render it slow-burning, and as this process goes on a motor will be slowed down (although it is better to reduce quantity of the right mixture) in which event the density of the mixture will be increased, after a fashion, somewhat as shown in *C*, Fig. 3. When the mixture is so enriched that it will have 3,500 volumes of atmospheric air to one volume of (liquid) gasoline it will not take fire and the motor will fail to run.

It is generally claimed that the greater the weight of fuel entering the cylinders, the greater will be the power of the motor, but it must be remembered that the fuel must be burned completely in order to make this rule hold true. Take, for illustration, the case in which the mixture is enriched in the process of slowing the motor down, this is not on a basis of increasing power. On the contrary, the power is on the decrease (a) because the speed is decreasing and (b) because the fuel is not in the best state to do the maximum work.

Economy Depends Upon Speed.—Since the power of a

motor depends upon the speed, economy in the use of fuel also depends upon speed. That speed is a settled requirement is too well understood to need proof; on the other hand, the relation of speed to torque will stand exploitation at this time, the formula for which may be written thus:

$2\pi = 6.28 = 2 \times 3.1416$, in which $3.1416 = 7/22$ = ratio of diameter to circumference of a circle,

R = radius at which torque is measured, taken in feet, can be accepted as unity in this case,

S = speed of motor crankshaft in revolutions per minute,

P = torque = pull in pounds, in this case, at one foot radius,

33,000 = foot-pounds per minute, equivalent of 1 horsepower,

$H.P.$ = horsepower of the motor.

$$\text{when } H.P. = \frac{2\pi R S P}{33{,}000}$$

$$R = \frac{H.P. \times 33{,}000}{2\pi S P}$$

$$S = \frac{H.P. \times 33{,}000}{2\pi R P}$$

$$P = \frac{H.P. \times 33{,}000}{2\pi R S}$$

The formula shows that, at a constant torque, the power will be directly proportional to the speed; on the other hand, the torque will not remain constant if the fuel is not held to a constant (right) mixture. Taking advantage of this, the fuel is enriched so that it will not deliver the best results when it is desired to slow the motor down in the absence of any considerable power requirement. If the power is to remain in direct proportion to the speed, it is then that the mixture should be held by about 8,000 volumes of atmospheric air for one volume of (liquid) gasoline. When the rich mixture comes from the tank as shown in Fig. 2, it can be "saturated," in which event the ratio of atmospheric air to gasoline will be on a basis in which 15 per cent. of the whole amount of vapor will be vapor of gasoline. This is a maximum value, rarely attained, and in order to show the great extent to which this saturated mixture would have to be diluted with atmospheric air, to make it burn, it is only necessary to say that, when the mixture holds 8,000 volumes to one (liquid) volume of gasoline, it is then the equivalent of 1.8 per cent. gasoline vapor (the balance atmospheric air) in the whole mixture.

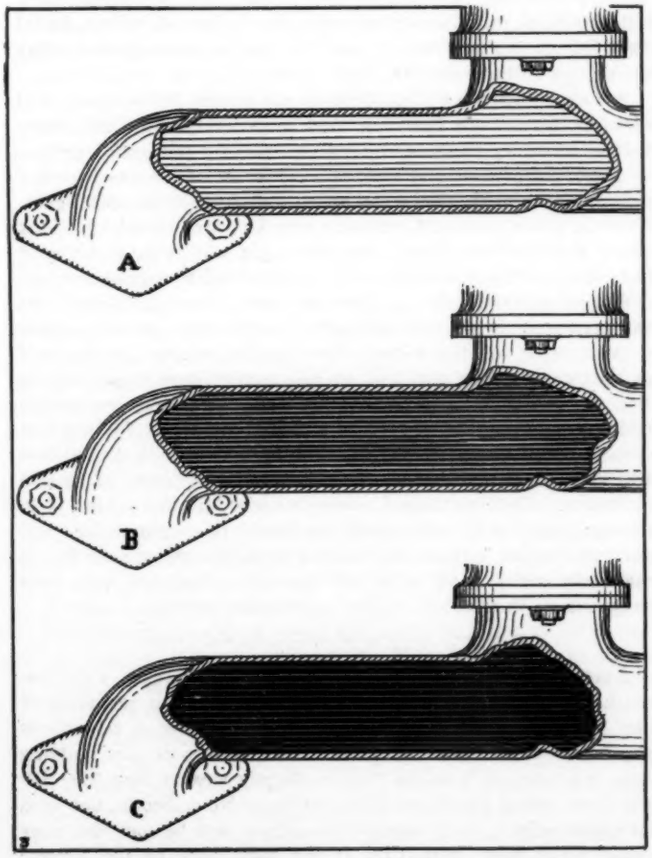


Fig. 3.—Carbureter manifold, (A) showing lean mixture, (B) proper mixture, (C) rich mixture.

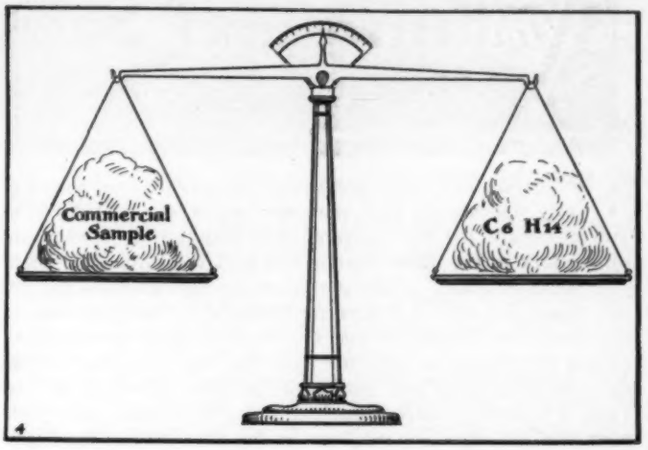


Fig. 4.—Illustrating the principle to use in comparing fuels.

Economy Depends Upon Completeness of Combustion.—As a rule, when a motor runs slow, the fuel economy is materially reduced, although the adjustments can be so made that but little of the fuel will evolve as carbon monoxide, hydrocarbons, hydrogen, carbon, oxygen, etc. When the products of combustion are carbon dioxide, water and nitrogen as the diluting agent, it is then that the fuel will be regarded as in a state called "complete combustion" and the fuel economy, aside from the utilization of the energy, will be a maximum. The effect of load changes on the combustion of the fuel, taking into account speed changes as well, may be noted in the following table:

PRODUCTS OF COMBUSTION UNDER THREE CONDITIONS.

Products.	Full Load.	Partly Loaded.	Slow Speed.
Carbon Monoxide	3.31	6.9	....
Hydrogen	1.19	2.4	....
Hydrocarbons	0.30	0.9	....
Carbon dioxide	11.90	9.9	6.3
Oxygen	0.23	0.3	11.2
Nitrogen	83.07	79.6	82.5
Total	100	100	100

Since the fuel value of the partially burned contents is known it is possible to reflect the losses resulting from incomplete combustion. The value of the unburned products can be set down as follows, subject to slight variation in some cases:

FUEL VALUE OF THE ELEMENTS ENTERING IN.

Carbon burned to carbon monoxide	4,400 B.T.U.
Carbon burned to carbon dioxide	14,500 B.T.U.
Hydrogen burned to water	62,032 B.T.U.
Hydrocarbons burned to carbon dioxide	20,000 B.T.U.

In the above tests of the state of the fuel after use, it is in evidence that, running slow, the air was in considerable excess, thus showing that, instead of running on a rich, slow-burning mixture, the slow speed was brought about by using a lean mixture in which the actual heat units present were barely adequate for the purpose. As the table shows, the best disposition of the fuel was made with the motor running slow, under which conditions there was no carbon monoxide, hydrogen or hydrocarbon fuel in the exhaust.

(To be continued.)

Valuing and Selecting a Second-Hand Car

By A. D. Hard.

THE market price of a partly used automobile does not properly indicate its true value for actual use. Unlike most articles bought for use, an automobile may quickly become unsatisfactory to the owner without fault of the automobile itself. The principal source of dissatisfaction among owners is the desire to secure a later and more stylish model. This notion causes the owner of a really good machine worth probably two thousand dollars to offer it for sale for half that sum. Another reason for selling a partly used automobile at much less than its real value is a desire to have a machine just a little faster, or a little finer than the next-door neighbor on the other side of the "spite fence." Again, a touring car is wanted in place of a runabout, or a steamer is wanted instead of a gasoline car, or a limousine may be desired in place of an open car.

In most of these changes the old car is traded in for what it will bring on the more desirable car, and the partly used car then finds its way into the second-hand car dealer's hands. Sometimes the partly used car will be but little used, not injured at all, and in fact will run smoother and better than a new car. The price usually asked for such a car is far below its real value. I saw a well-known touring car in a popular second-hand shop on Michigan avenue, Chicago, last January, that cost $4,000 less than two years previously, which was marked $900. I examined it critically and found it in first-class condition. Of course, I bought it. In less than thirty days that car was eagerly sought for by two buyers at $1,500, but they did not get it.

As an expert I am frequently requested to give my opinion on the value of a proposed purchase, and the necessity at once arises for differentiation between market value and actual value. The price which a buyer should fairly pay for a partly used automobile depends upon the average price charged for such make and quality of machine. The value for use is quite another and a different matter.

Figures from a Bargain List.—Taking the "bargain list" of a large New York dealer as a basis for making averages, the following figures were deduced. I selected six of the most popular makes and found that he had seventy of these cars for sale, some being old models, some being single cylinders, double cylinders, four cylinders, and part being chain drive. There were nineteen Cadillacs, sixteen Wintons, twelve Fords, nine Maxwells, eight Ramblers, and six Buicks. The average cost price of these cars when new was nearly $1,600. The average price now charged for them as partly used cars was $503. The average time that these cars had been used was sixteen months. Nearly all of these cars had extra equipment, the average value of which I estimated to be $30. This left the average selling price of the cars at $473. From these composite deductions, we find that a second-hand car that has not been used more than sixteen months should sell for not over 30 per cent. of its original cost price. But this must not be a strict assessment of value, for conditions of engine, tires, and amount of equipment must be considered. There are several factors to be considered which do not appear at a casual glance, nor can they be determined by a trial run.

Reliability and Replacements Have an Actual Money Value.—The repute of the maker of a car for turning out reliable products is a very important feature which should not be overlooked. Another factor of value is the possibility of securing replacements when needed. And the probability of ready sale for a fair price in case that you may wish to dispose of it is worth some attention. The maker who turns out thousands of cars will in all probability have a more even standard of mechanical construction than the one who struggles along with an output of fifty cars a year. The manufacturer who makes all the parts which are vital to the quality of his car will be likely to make them well so as to derive a good name as an asset of value for future business.

On the other hand, a manufacturer of automobiles may not have the extensive shop equipment to turn out as good an engine as the man who devotes all his capital and ability to perfecting that special part. To say that every part is made in our own factory may or may not be a true estimate of quality. As a rule, the car that has been abandoned by a manufacturer is faulty. It has not proved to be as good as he expected that it would and he has quit making it. The manufacturer who is constantly changing his model is very apt to be uncertain in his judgment of what is really best in methods of construction and design.

Appearances May Be Deceiving, but Dealers Are More So.—When it comes to examination of the car as a prelude to choice, the man who can buy with his eyes exclusively will be more certain of securing something which will not disappoint him. Not that I mean to say that dealers are all dishonest, but they all look at the transaction from a more or less selfish point of view. Selling second-hand automobiles is fast becoming as proverbial as selling horses, have good eyes and use them.

The cheapest thing on earth is talk, and the next is a catalog with testimonials. The relative cost importance of parts that may be worn and need replacing is a matter of discrimination.

If a car needs a complete new engine, it certainly is not so desirable as one that requires some few inexpensive replacements. Frequently a few of these little replacements will make a car almost as good as new, while without them it will hardly run at all. For want of a minute rubber washer on a tire valve, the tire went flat, the car ran into a tree, and two people were killed. As a rule, lack of compression is considered an awful fault of an engine, when it may be due to worn piston rings which can be replaced for a few cents.

An experienced ear, aided by a physician's stethoscope, will discover burned-out bearings, loose connecting rods, and leaky valves. A noisy transmission may be silenced with thick grease, so remove the cover and look at it. I know of no way to test a differential but by taking it apart and looking at each gear. Nothing about a second-hand car may be so worthless, yet look fairly good, as the tires. The only safe way is to make your bargain so as to cover a new set of tires which are not seconds.

A trial spin in order to see how much power and speed the car may have is of doubtful value to the buyer, although it is a great point for the seller. This applies to new cars as well as partly used ones, for it is an easy matter now to use special fuel for trials in a demonstrating car. The first automobile which a man operates should be a second-hand one, for the first three months' use of a new machine by an inexperienced driver will do it more real damage than the next three years of careful operating. The best way to select a second-hand machine is to get an experienced automobile mechanic to examine the vital parts and make a report as to what replacements are needed to make the car a good serviceable machine, then use your own judgment as to whether on not it suits your needs.

Aeroplanes will beat the Empire State Express, is the remarkable opinion voiced recently by A. M. Herring, president of the Herring-Curtiss Aeroplane Company, during a talk about the future of the flying machine. This concern is now building four machines of a model that is slightly smaller than the Silver Dart, which has flown successfully in Nova Scotia, but with increased power. It is expected that these will be such that they could leave New York City at the same time as the Empire State Express, and beat the train into Buffalo. Experiments will be tried to determine speed attainable.

Which Is Better: Three or Four Speeds?

By Louis Lacoin

WHICH is preferable—a car with *three* speeds, because of its simplicity and the relative smoothness of its running, or one of *four* speeds, despite its higher initial cost and the supplementary complications of its mechanism? That question does not trouble the purchaser very much; the list price alone interests him. With regard to the reasons that have permitted the builder to reduce the cost, or have compelled him to increase it, he is concerned but vaguely. A certain name, a certain power, details of the mechanism that are *a la mode*, influence far more in his choice than the number of gears that the chassis happens to have in its interior. Pay more and then have more lever shifting to do? Thank you. I prefer at the same price a motor that is more powerful. And the builder does not hesitate to place this heavier motor on his chassis. He knows that a few horsepower more will scarcely have any influence on the cost of building the machine, while their presence will permit him to inflate the market price without fear.

But so far as putting a four-speed gear set on the chassis that he builds, he consents to do it on the heavy, high-powered vehicles, because their selling prices are sufficiently remunerative to warrant it. But the small cars? They are the ones on which it is necessary to reduce the cost of manufacture to the minimum. They should have but three speeds. So much worse for the buyer. He cannot comprehend the necessity of being out of pocket several hundred francs for a fourth speed, since that fourth speed strikes him as useless.

But that fourth speed is not useless by any means, as can be proven. First, to begin by justifying the reasoning of the builder in showing what the addition of that supplementary speed leads to in the way of changes on the chassis. In Fig. 1 have been grouped three types of change speed gears. No. 1 represents a type providing three forward speeds and reverse, with the high speed on the direct drive. The sliding member is reduced to the two pinions *C* and *D*, with the jaw clutch *A* for the direct drive. Both the length and diameter of the shafts are moderate; the weight is not great, and the cost can be kept low.

Additional Speed Adds Fifty Per Cent. to Length.—The method of operation of the second arrangement, No. 2, still involves but a single sliding member, but it is almost *half as long again* as the preceding one. The addition of the fourth speed has been responsible for the increase. It must not be thought, however, that the relative distances between the pairs of gears are all the same, and that the fourth pair would accordingly not be responsible for increasing the length more than one-fourth of its previous size. This would be a fallacy.

Take, for example, the three pinions of the sliding member. The gear *B* is actually in mesh with the pinion *P*. That pinion must be a sufficient distance away from the driving gear *M*, so that these two shall not come in contact when the jaw clutch *A* is engaged. The gear *C* of the sliding member, on its part, must not contact with *P*. Between *B* and *C* there must be sufficient space for engagement, plus a length equal to the travel of the jaws of *A*, plus a few millimeters for play. The gear *C* must not contact with the pinion *Q*, when sliding to the right, after *B* and *P* have become entirely disengaged. The pinion *Q* is then distant from *P* a space greater than that from the left face of *B*, to the right face of *C*. Again, the gear *D* of the sliding member must never come in contact with the pinion *Q*, and, as on the direct drive, when *C* is close to *P*, *D* is also close to *Q*, the distance between *C* and *D* is equal to that between *P* and *Q*, and must be greater than that between *B* and *C*. From this it will be evident:

1. That the interval between *B* and *C* is equal to the width of a gear face, plus the length of the direct drive jaws, plus the necessary play.

2. The interval between *C* and *D* is equal to the preceding space, plus the width of *two gear faces*, plus the necessary play, which is also greater.

3. The interval between *P* and *R* is equal to that between *C* and *D*, plus the width of *two more gear faces*, and the play required, this being greater than before.

Fourth Speed Increases Both Speed and Weight.—Consequently the addition of the fourth speed has increased the length of the gear-set by the width of five gear faces, and a

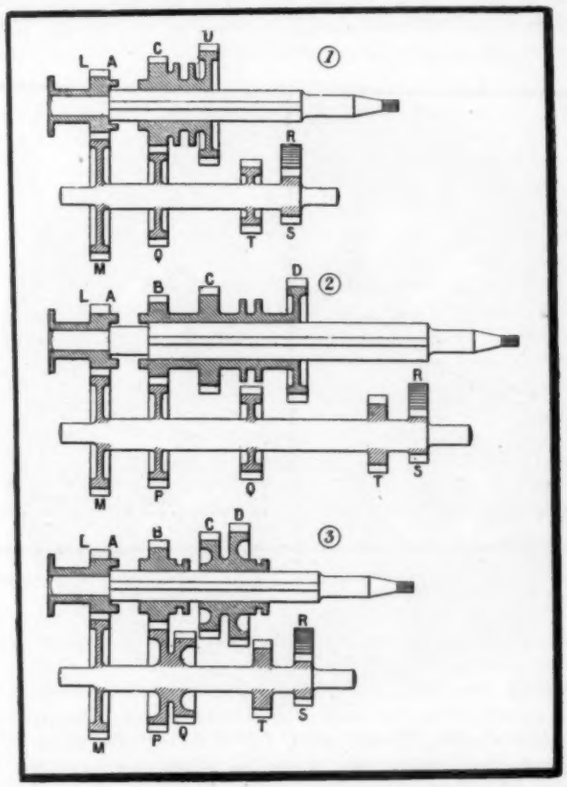


Fig. 1.—Types of change gears: No. 1, three speeds. N. 2, four speeds, one sliding member. No. 3, four speeds, two sliding members.

number of millimeters for the play required. These shafts, being so much longer, must be made that much stronger and heavier. The gear-set housing must likewise be made capable of carrying a greater weight, from which it will be seen that a four-speed gear-set calls for an entirely different class of work than a three-speed gear. Necessarily, the cost is much greater.

Thus far our attention has been confined to a type of gear-set having but a single sliding member. It is possible to make it with two sliding members, or even with three. The size of the gear box may then be reduced. See No. 3. But the interior complication and the more involved method of operating the sliding members, far from diminishing the cost, greatly enhance it. There is no difficulty, in view of this explanation, in understanding the hesitancy of the designer to thus increase initial cost.

Let us see what end this fourth speed serves. It is not with the manufacturer that the question will be discussed, but with the buyer. Take, for instance, two machines, identical in every respect, except the number of speeds with which they are pro-

*Translation from the French of "Omnia."

vided. Both are of the same weight, have motors of the same power, and both have the same type of gear-set, except that one has four and the other has but three speeds. Take the three-speed car first. The choice of these speeds is not a matter of indifference, as our analysis will show incidentally, though this is not the place to discuss that. Assume that the speeds chosen are the conventional ones of 16, 28 and 48 kilometers (10, 17½ and 30 miles) per hour. Assume the car to be on the road, with the second speed engaged. Will the motor then propel the car at exactly 28 kilometers (17½ miles) per hour? It will, if it happens to be on a 7½ per cent. grade, as under these conditions, the motor will develop its full power. But if the grade be less, the speed will no longer be 28, but 30, 33 or even 35 kilometers (18½ 20½ or 22 miles) per hour, at which the motor, being less heavily loaded, will drive the car. On a stiffer grade the speed will, on the contrary, diminish, and if we wish to climb a grade stiffer than 10 per cent. it will stall.

The curve *A B E C N D*, Fig. 2, represents the speeds which the car in question will make on the different grades with the second speed in engagement. During this period the motor will turn at a series of speeds corresponding to those of the vehicle. But at all these speeds, with the exception of the first, it will not furnish

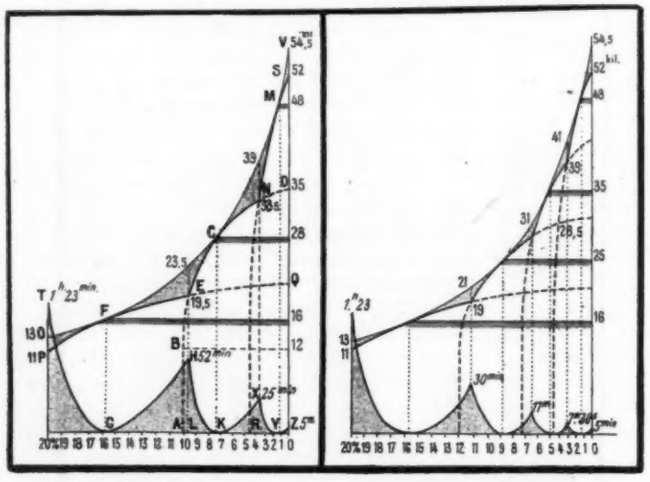


Fig. 2.—Showing time losses with three speeds.

Fig. 3.—Showing time losses with four speeds.

its maximum power. Its maximum output will correspond to the point *C* of the curve *A B E C N D*.

Shifting into first speed, we will then have a new curve *P F E Q*, with *F* as the point of maximum power. On the third speed we would have the curve *X N M S*, with the point *M* as the peak representing the maximum power delivered by the motor. If free to take any gear ratio, the points *C*, *F* or *M* of the curves corresponding to each one of these gear ratios would form a new continuous curve *U F C M V*. That curve would represent the speed at which the motor, turning at its best r.p.m. rate and developing its maximum power, would drive the car up the different grades.

It will also be evident that on a 9.6 per cent. grade the car would attain a speed of 23.5 kilometers (14.6 miles) per hour, while on the first speed, curve *P F E Q*. On the second speed, curve *A B E C N D*, it will only reach a speed of 19.5 kilometers (12 miles) per hour. Not having all speeds, 4 kilometers (2½ miles) an hour is consequently lost. If there was 100 kilometers (64 miles) to run on such a grade, it would mean the loss of almost an hour in making it—to be exact, 52 minutes, taking 5 hours and 8 minutes, instead of 4 hours and 16 minutes. So far as the owner's pocket is concerned, the result is the same as if the motor had been run under full load for 52 minutes, without propelling the car. If the motor were one of 12 horsepower, it would mean 5.2 liters (1.14 gal.) of gasoline wasted.

Loss Is Less on Lower Grades.—But grades of 9 per cent. are rare; take one of only 3.6 per cent. The loss in 100 kilometers (64 miles) will be 25 minutes, or 2.5 liters (.55 gal.) of gasoline. The curve *T G H K X Y Z* represents the loss of time in 100 kilometers, which the three-speed gear-set, chosen with the speeds in question, would cost. Why not then choose others? Everything depends upon the nature of the ground to be covered. If, as is usually the case, the rises are short, and the easy grades far more numerous than the bad ones, we could have favored them in our illustration, by making the second speed very much higher. In a rolling country it would be necessary to diminish the value of these speeds in such a manner as to reduce the loss of time on the heavy grades, and increase it on the others; *T* and *H* would then be lowered, and *X* and *Z* raised.

For lack of more definite data, let grades ranging up to 8 per cent. be assured. The average loss of time in 100 kilometers will then be 12 minutes, and the loss of fuel for the same distance will be slightly more than one liter—1.2 liters (.26 gal.), to give the exact figures.

It will be well now to consider the four-speed car, Fig. 3. Assuming the same basis of desiring to favor the light grades, choose speeds of 16, 25, 35 and 48 kilometers (10, 15½, 22 and 30 miles) an hour for the first to the fourth speeds, respectively. The maximum power curve remains the same, as well as the curves for the extreme speeds, 16 and 48 kilometers per hour The two curves of 25 and 35 kilometers per hour have replaced the former single intermediate of 28.

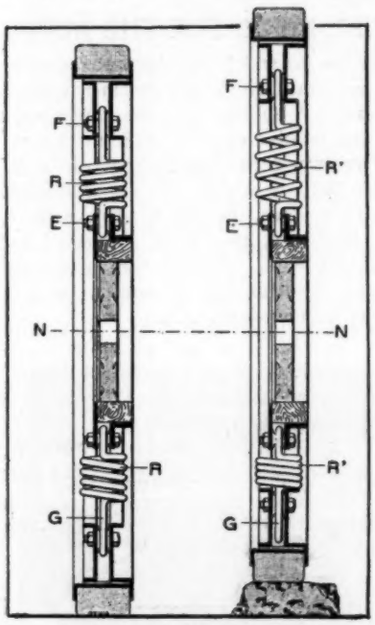
Fourth Speed Saves Enough Fuel and Time to Pay Its Way.—These curves follow very closely the curve of maximum power, while the fuel and time losses per 100 kilometers are greatly reduced. It is found, as a maximum, 30 minutes on a grade of 11 per cent.; 17 minutes on a grade of 6.2 per cent.; 7½ minutes on a 3 per cent. grade, and 5 minutes on rises less than this. The mean average of these losses on grades up to 8 per cent. in 5 minutes, and half a liter (.11 gal.) of *essence*. By having four speeds, 7 minutes and .7 liter (.15 gal.) of fuel per 100 kilometers have been gained. Let it be supposed that only 20,000 kilometers (12,400 miles) in a year are covered. The gain is 1400 minutes, or almost 24 hours of driving, and 140 liters (31 gal.), or at least 52 francs in fuel ($10.40) in actual running (outside of Paris), without considering the matter of lubrication and wear on the motor, during those 24 hours of useless running, due simply to that fourth speed.

On the other hand, let it be assumed that the mean possible speed, the power of the motor being given, is 40 kilometers (25 miles) per hour. If there are three speeds, that will be lowered to 37 (23). With four speeds, instead of 40, we will have 38.7 kilometers (24). The fourth speed will then be equivalent to the practical increase of 5 per cent. in the power of our motor. To the economy of time might be added that the saving of fuel is almost one liter (.22 gal.) per 100 kilometers, so that we must recognize that this extra speed is well worth the small amount of space it demands on the chassis, and that it has the right to pay for its presence there.

"Machine Drawing and Design for Beginners."—In this work on a time-worn subject the publishers, Longmans, Green & Company, have succeeded in getting a new style of treatment which is unusual and effective. The author is Henry J. Spooner, C. E., a well-known English engineer and writer on engineering subjects. The text is divided into 26 chapters, each devoted to a different subject which is thoroughly handled and completed before taking up the next. The method of treatment is as follows: the subject is defined, then discussed, then the ordinary points are called to the student's attention and their treatment clarified. Next the more difficult questions are taken up in a similar manner and finally the subject is closed. Drawings illustrate every point made and no less than 14 useful tables are given. At the close of every chapter exercises are given of a numerical, drawing and sketching nature. These carefully follow the text, but at the back are given a miscellaneous lot of problems covering the whole work. It is an excellent book for the purpose, mechanical drawing self-taught, or equally good for class instruction.

FRENCH SPRING WHEEL APPEARS MERITORIOUS

FROM the very birth of the automobile there have been produced spring, elastic and other flexible wheels designed to eliminate the pneumatic tire and all attendant troubles. These have possessed merit sometimes, others were only ingenious and not practical. The latest to be produced among the French, always large producers in this particular line, is the Lipkowski.



Section Illustrating the Action.

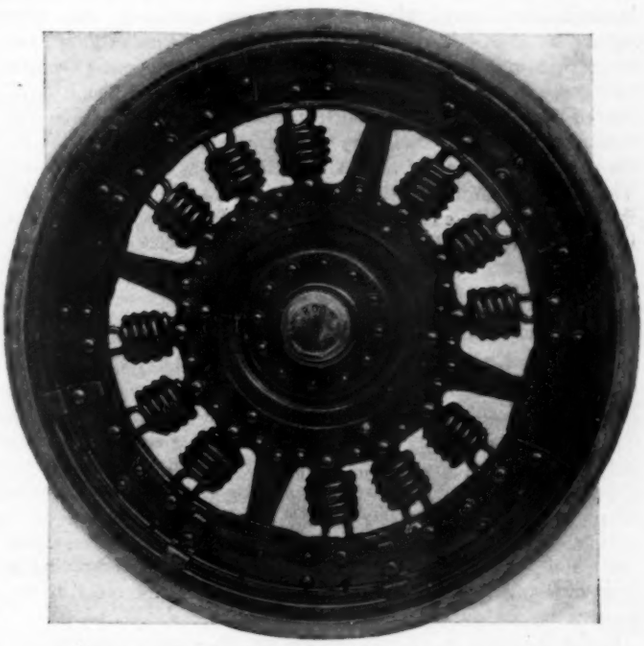
This has, says *Omnia*, an interior portion carrying the axle and a felloe or exterior part carrying the rim and demountable solid tire. The two are united by means of a number of small diameter coil springs, 12, to be exact. They are arranged in sets of three each, placed between the arms of the interior part. This part is a built-up member and projecting arms are riveted between the two portions, which go to form the hub.

The arms are of steel and case hardened to care for possible wear. They are free to slide up and down as well as sideways, but only to a very limited distance. The rotative or sideways sliding motion is limited by a pair of abutments or projections, while the other motion is restricted by the springs. These will restrain the rotative motion, making it gradual and progressive. Shocks would destroy the projections which may not have a large cross-section.

The springs are coils of a small diameter and with the size of the wire proportioned to the load, small for light touring cars and runabouts, large for heavy enclosed cars or trucks. The two eyes for attachment are turned into a plane parallel to the flat side of the wheel and differ. The inner end is perfectly circular and just fits the bolt upon which it is mounted, so that there is no play at that end. The outer end is elongated and consequently has a little freedom.

This comes in when the wheel runs over an obstruction, as shown in the sectional drawing. The interior part with the axle does not rise but continues in the same horizontal plane. The felloe portion rises, thus drawing away from the inner part at the top and approaching it at the bottom. The first action exerts tension on the upper spring, stretching it. The second part of the movement compresses the bottom spring, First, the elongated eye gives or slides the length of the elongation. A further movement results in pressing together the coils.

In this way the inner wheel is suspended within the outer, the outer taking all road shocks and altering its position relative to the inner without actually disturbing it or the axle which it carries. The outcome of this is the desired result, easy riding qualities with solid tires. A set of these wheels on a heavy limousine car of 40 horsepower was driven 10,000 kilometers (6,210 miles) among the Alps and through other mountainous parts of Switzerland and Italy. On this long tour the inventor had with him three or four friends, so that the car was well loaded at all times. The riding was said to be very comfortable at all times and the only outcome of the trip was the necessity for replacing two broken springs.


View of the Lipkowski Wheel, Showing the Springs.

These cost 18 francs ($3.50) and their replacement occupied but 11 minutes. It is hard to imagine a similar trip on pneumatics with any less expense and an equally low amount of lost time, so the statement is fair that the merits of the wheel have been proven by actual, severe test.

SOME POINTERS REGARDING THE CARE OF TIRES

SIDE slipping and wear is due to spreading of the front wheels, generally caused by a bent distance rod or drag link connecting the steering arms or knuckles. If this condition is present, even in a comparative slight degree, the strain and wear brought upon the tire will quickly wear out the tread, inasmuch as the side slip continues with the rotation of the wheels. In case of excessive tread wear, examine the front wheels and find if they take proper position for straight ahead running.

Deterioration, due to chemical action, or rotting of the fabric lining, is usually caused by water or dampness, and is most likely to occur in tires which have been stored away for the winter. Water will penetrate even a comparatively insignificant cut in the tread, and being absorbed by the fabric a gradual breaking down of the tire and disintegration will result. It is important for this reason to keep the tires in good repair.

Extra shoes and tubes should be protected by cases from the light and dust. Inner tubes in particular should be given proper care. When not in use they should be partly inflated and placed inside the spare shoes. Extra tubes should be spread upon a table with the valves spread half-way, and rolled up with the valves on top. Talcum or soapstone powder should then be freely sprinkled in the folds.

E-M-F Fire Fighter for Tampa's Fire Chief.

TAMPA'S FIREMEN GET THEIR NEW AUTO.

TAMPA, FLA., April 10.—Desiring to be thoroughly up-to-date in its equipment, the fire department of this city has received through the Tampa Harness & Wagon Company, the local agents, an E-M-F "30," a tourabout, equipped with four fire extinguishers, lanterns, axes and other fire-fighting paraphernalia for the use of the chief. The photograph shows Chief A. J. Harris seated beside the chauffeur, and directly behind him sits the assistant chief. Standing in the rear of the car is T. N. Henderson, manager of the Tampa Harness & Wagon Company. This car was the first E-M-F delivered to a Florida dealer, and is the first one in commission in that State, the wide tread that is required for Southern use on sandy roads making deliveries slower here than in the North.

CHINESE HAD A TAXICAB IN A.D. 265.

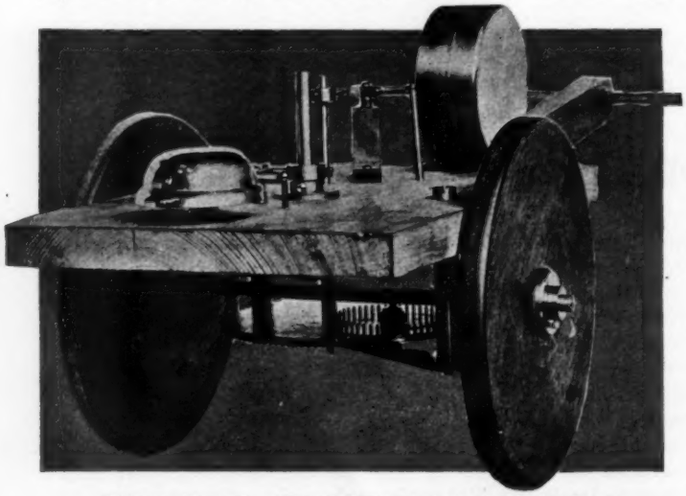
Professor Giles, of Cambridge University, has discovered in the dynastic histories of China a full specification of a taxicab dated A. D. 265. A model of the chassis has been made by Professor Hopkinson. The existence of such a vehicle has been hinted at several times in the past few years, and, in the research, Professor Giles came across the following reference to it in the history of the China dynasty (A. D. 265-419):

"The measure mile-drum-carriage is drawn by four horses. In the middle of it there is a wooden figure of a man holding a drumstick towards a drum. At the completion of every li the man strikes a blow on the drum."

Under the years A. D. 815, 830 and 987, they again heard of the taxicab, and the following further description was given:

"They are painted red, with pictures of flowers and birds on the four sides and in two stories, handsomely adorned with carvings. At the completion of every li the wooden figure of a man in the lower story strikes a drum, and at the completion of every ten li a man in the upper story strikes a bell. There is a pole with a phœnix-like head and a team of four horses. Formerly the chariot held 18 soldiers, which number was increased in 987 by the Emperor T'ai Teung to 30."

The taxicab was again to the front in 1037, when an account of the mechanism was given, and even so late as the fourteenth century they read of a well-known poet who wrote a poem entitled "Ode to a Taxicab" in its praise.



Chinese Taxicab of Third Century of the Christian Era.

ANOTHER COMMERCIAL FIELD FOR THE AUTO.

CLEVELAND, April 12.—The use to which the Auto Renovator Company of this city has just put their White steamer is decidedly novel, to say the least. A special body was built and placed on the rear end of the regular chassis. Within this is placed a dynamo and the necessary regulating devices. In use, the cleaning of houses by the vacuum system, the car is driven to the house where work is to be done, the dynamo belt is then put on, so that current is generated, this being connected to the other apparatus by means of wires. This is the up-to-date way of handling the cleaning problem, and is said to be far superior to the old and noisy vacuum apparatus.

Vacuum Cleaning Outfit on White Steamer Chassis.

To attract attention and thus business the car is equipped with a very large set of Gabriel horns. When going along the street to or from work the horns are played, the skilled operator being able to produce all of the popular airs and attract a proportionate amount of attention.

MAIL WAGON AND FIRE TRUCK FOR AKRON.

AKRON, O., April 12.—For a town of its size Akron can pride herself on being just as up to date as many a larger place. The recent events which have led up to the statement above are the call for bids on an automobile fire truck by the Board of Safety, the construction of an appropriate house for the same, and the very successful trial of a Brush mail wagon similar to those now in use in Washington.

This test lasted something over twelve hours, during which time the car covered 13 runs, totaling 35 miles, and made 322 stops. In this time the same work was done as ordinarily takes three men and three horses. The result was highly pleasing to Superintendent Schick, who personally accompanied the car. He was so much pleased that he will immediately place an order for a duplicate of the car used on the test.

The many large tire factories are so widely scattered that good service with horses is practically impossible and there have been many complaints. It was the result of these complaints that caused the present trial. The product of one of the tire companies helped to make the test a success, the Metz clincher tires going through without a particle of trouble.

Letters Interesting and Instructive

CARBURETER WATER JACKETS.

Editor THE AUTOMOBILE:

[1,830.]—Will you please explain the functions and necessity of water jackets for carbureters? Also the necessity for hot air supply to the carbureter, which is used on many cars. READER.

Allegheny, Pa.

The chemical action of converting a fluid into a gas is accompanied by the absorption of heat. If no extra heat is furnished, the action of absorbing heat from the air will freeze the moisture in the air and this collects on the outside as a sort of snow or frost. That in turn retards the vaporization. So, heat is furnished from the handiest source. On some cars this is the hot jacket water and on others the heat of the exhaust pipe is used. It is very seldom that both are utilized on the same cars.

The purpose of making the carbureter with a jacket is to allow the use of the hot water if desired. All carbureters so made may also be had without the jacket. The majority of drivers prefer to do without this external heat supply in summer or in warmer climates.

COLOR TELLS THE STORY.

Editor THE AUTOMOBILE:

[1,831.]—Will you please tell me what the color of the exhaust indicates; that is, how can you tell from its color what is wrong?

Baltimore, Md. STUDENT.

The exhaust from a perfect mixture is practically colorless. When the exhaust has the form of a dense smoke it may indicate one of two things. Either you are using too much lubricating oil, in which case the smoke will have a blue color, or else you are using too much gasoline, when the smoke will be more black and contain much soot. If the former is the trouble, you may not be able to remedy it at once. The whole system will be so full of oil that it will not burn out in a few minutes. The waste of fuel, on the other hand, can be remedied at once.

ONE PLUG WON'T SPARK.

Editor THE AUTOMOBILE:

[1,832.]—Will you please help me out of a little ignition trouble? My four-cylinder engine is ignited by means of a magneto, coil and regular spark plugs. Number one and three fire all right, but cylinders two and four will not fire as they should, although they sometimes spark. Can you tell me what is the most likely source of trouble, so that I can fix it? R. E. PAIR.

Torrington, Conn.

There are a number of likely sources of trouble in your case. First, the insulation of the wires to the cylinders which are at fault may be defective. Defective insulation may be due to moisture, as water or oil, wire touching metal so as to ground the circuit, or the insulation in the two sections of the coil may be partly broken down. Second, you may have loose connections in those two circuits, at the plugs or at the coil. Third, the spark plugs may be defective. A cracked porcelain will cause trouble like this. Or the insulation on the plug may be partially broken down so that the plug is fooling you by sparking all right in air but won't jump correctly in the higher pressure of the compressed mixture. In the latter case, the current will leak through the defective insulation of the plug rather than jump the air gap.

These are the principal sources of trouble in a case like yours and of them all you will find the defective insulation within the coil the most elusive and, at the same time, the most troublesome.

GASOLINE ATTACKS RUBBER.

Editor THE AUTOMOBILE:

[1,833.]—In the March 25 issue of "The Automobile" was printed a description of a tire inflator, which utilized the compression from one cylinder of an automobile engine. It being a well-known fact that gasoline, as well as oil, has an injurious effect upon rubber, it seems to me that the carbureter air which this device pumps into the tires, containing gasoline as it does, would have the same effect upon the inner tube.

If I am mistaken about this, I would be pleased to be corrected, as I have received several inquiries on the practicability of such a device.

Youngstown, O. E. F. McNUTT.

Regardless of any merit or demerit of the particular device in question, the fact exists that gasoline always and under all conditions attacks rubber. So any mechanism which introduces gasoline or its vapor into a tire would have a more or less destructive effect. Experience will tell the exact result in this specific case.

WHAT IS A CYCLE?

Editor THE AUTOMOBILE:

[1,834.]—Will you please advise me through "Letters Interesting and Instructive" the meaning of the word cycle as used in connection with automobile engines?

INTERESTED READER.

Chihuahua, Mexico.

Webster defines a cycle as: An interval of time in which a certain succession of events or phenomena is complete, and then returns again and again, uniformly and continually in the same order. In the automobile engine, the phrase used at first was two-stroke cycle, four-stroke cycle, etc., but now the word stroke is usually omitted. These phrases were used to indicate the number of strokes in which the succession of events necessary to the operation of the engine, viz., suction, compression, expansion and exhaust, were completed. Until very recently there were but three of these phrases: two cycle, four cycle, six cycle. A French engine described on page 314 of THE AUTOMOBILE for Feb. 18, however, works three cycle.

RED-HOT EXHAUST PIPE.

Editor THE AUTOMOBILE:

[1,835.]—Will you please explain what is likely to cause the exhaust pipe on my car to become red hot as it does? I am a careful driver and do not like it to do this, although there is no real harm done. J. T. D.

Yonkers, N. Y.

There are four possible causes for your trouble. First, the muffler may be clogged. Second, you may be driving too much on the low gear. Third, your exhaust may be throttled too much either in the pipes or in the engine. Fourth, it is possible that you drive too much with a retarded spark. The first can be remedied by taking the muffler off and cleaning it. The second and fourth you can change even easier than that. The third, on the other hand, will require some study and possibly some work. If the exhaust is throttled in the engine, other than changing the valve timing so as to hold the exhaust valve open longer, you can do very little. If it is in the pipes, you can change the bends and make the passage of the gas easier.

THE THREE-SPEED PLANETARY.

Editor THE AUTOMOBILE:

[1,836.]—Will you tell me if there are any three speed and reverse planetary transmission in actual use in this counry, and if so, who uses them? AUTOCAR.

Belleville, Kan.

To our knowledge there are no cars built in this country so equipped, but in England a car has been brought out recently with this form of transmission. That is, it is called a three-speed planetary but correctly speaking there is no epicyclic action except when the reverse is engaged. No internal gears are employed in the construction and although a series of planet wheels is used, in the generally accepted sense of the word, this is not a planetary.

The big trouble with the three-speed planetary is the complications attendant upon its construction and the great flywheel effect when the whole transmission is revolving as a unit. The weight is increased very materially by the transmission itself and by the additional control necessary. The latter is a complication over the two speed form. Summed up, the advantages are few and the disadvantages many.

COMPACT ARIES ENGINE.

Editor THE AUTOMOBILE:

[1,837.]—Will you please answer the following questions relative to the Aries engine described in the February 18 issue of "The Automobile": (1) What are the advantages of this motor over an ordinary four-cylinder motor? (2) What is the relative balance of a motor of this sort and what is the firing order? (3) What firm makes it and where are they located? R. S. O'HARA.

Wilkes-Barre, Pa.

(1) The great advantage of this engine consists of the small space which it takes

up and the obtaining of two impulses per revolution. The length of the space occupied is nearly one-half of that taken up by an ordinary engine of the same power.

(2) The firing order is: Front right, rear right, front left, rear left. This brings the first two impulses 180 degrees apart, 165 to the next, then 180 again, 195 back to number one. The construction is such that it is similar to the two-cylinder, two-crank engine. The balancing is: Primary forces balanced, primary couple unbalanced, secondary forces unbalanced. Owing to the arrangement of the three-crank discs within the case, a heavy fly-wheel effect is obtained which makes the value of the balanced primary forces very great in comparison with the others.

(3) It is made by the Société Anonyme des Automobiles Aries, 39 Quai d'Argenteuil, Villeneuve-la-Garrone, France.

TWO-CYCLE MAGNETOS.

Editor THE AUTOMOBILE:

[1,838.]—I desire to build a three-cylinder two-cycle engine, and want to use a magneto for ignition. Will you please tell me whether to use a three- or a six-cylinder magneto, and how to connect it up to the engine? Will it be necessary to use two sets of spark plugs? How fast must the magneto run compared with the crankshaft? I have a six-cylinder magneto which I would like to use if it is possible, as that will save my buying another. A. D. SOFT.

New Rochelle, N. J.

To answer your question rationally it will be necessary to select a firing order for a six-cylinder four-cycle and a three-cylinder two-cycle. Suppose this be taken as 1, 5, 3, 6, 2, 4 for the six and 1, 3, 2 for the three. The whole number of cylinders is fired in two complete revolutions in the former case, while in the latter they are all fired in one complete revolution. Therefore to put them on a comparative basis it will be necessary to consider two complete revolutions in the latter case. This would make the firing order read 1, 3, 2, 1, 3, 2. Now, if you have a six-cylinder magneto it is geared to fire all six cylinders in one of its own revolutions or one-half of the crankshaft speed. In using this same magneto on a two-cycle three-cylinder engine, if geared the same as before, you would get six sparks per magneto revolution, which is per two crankshaft turns. As this is the required number to spark each of three cylinders twice, all that will be necessary is to provide two sets of spark plugs and connect them to the magneto so that they are used alternately.

Thus, the first turn of the crankshaft will produce a spark in each cylinder using the first set of plugs. Then the second set will come into use on the second turn of the shaft, and so forth.

If you did not have the six-cylinder magneto on hand, it would probably be preferable to purchase a special three-cylinder magneto and so gear it as to turn at crankshaft speed, which would give you the same results, viz., three explosions per revolution. In that case the extra set of plugs and the wiring would be eliminated, simplifying the whole ignition system, and the wiring from the magneto would be so simple that it would be impossible to make a mistake. To return to the firing order in the case of the three, the magneto leads would have to run to cylinders 1, 3, 2 of the first set, then 1, 3, 2 of the second set.

Some magneto firms furnish magnetos in multiples of two only, varying the speed to care for cases like three cylinders or other odd numbers. These would not give you any trouble, however, as instructions are furnished with each instrument sold.

In the case that the magneto which you have is wound to turn at one and a half times the crankshaft speed for a four-cycle, it will only be necessary to run it at the same speed for a two-cycle of half the number of cylinders as brought out above.

HOW TO VAPORIZE KEROSENE.

Editor THE AUTOMOBILE:

[1,839.]—Will you please tell me the general principles of the vaporization of kerosene and why it is not more generally used for automobiles? A. B. DUGAN.

Jersey City, N. J.

The principal reason why kerosene is not more generally used is because of the lack of suitable vaporizers. To gasify any of the heavier hydrocarbons, a great deal of heat is necessary, much more than that furnished by air in the case of gasoline. In the usual kerosene carbureter, the fuel is heated previous to spraying it into the mixing chamber, by using the exhaust, circulated around the kerosene inlet. It is then atomized, in a chamber which is also furnished with a source of heat to assist that action. A second method is to compress the air only to a very high, an excessive pressure, within the cylinder and then spray the kerosene into that highly compressed and highly heated air. This heat ignites the entering stream of kerosene spray. The method employed in the Diesel motor is very similar to this.

The greatest disadvantage of the use of kerosene is starting. For this, the mixing device must be heated with a torch or else gasoline must be used to start on. A majority of automobilists finding it necessary to use gasoline for starting will use it for running sooner than bother with two fuels.

THE AREA OF MUFFLERS.

Editor THE AUTOMOBILE.

[1,840.]—I am having trouble with my muffler so will ask you to please answer a few questions relative to the same. Should the area of the muffler be less than the area of the exhaust pipe leading to it? In the case of mine, the cubical contents of the muffler are but one-half of the volume which is swept out by the piston. Should this be so? Moreover, the area of the small openings out of the muffler into the air is less than one-fourth of the area of the exhaust pipe. Is not this wrong in principle?

Dayton, Ohio. JOHN O'BRIEN.

An increase in pressure is accompanied by a corresponding decrease in volume, and the reverse of this, a decrease in pressure, always shows an increase in volume. These are natural, unchangeable laws. In the case of a muffler, the gas entering it from the engine is at a high pressure, say, 35 pounds per square inch. The volume is accordingly low. The object of the muffler is to reduce this pressure to atmospheric or as close to it as practical. Let us say that the object is to get a terminal pressure of 16 pounds per square inch. The volume will be increased proportionately.

So instead of a decrease in the volume of the muffler pipes what is wanted is a large increase. It is hard to see how the area of the muffler can be less than that of the exhaust pipe, as per your first statement. In the matter of your second statement, the cubical contents ought properly to be about twice the pipe, rather than the one-half of your case, so you should enlarge yours four times. Relative to the area of the small final openings these should be the largest of all, if volume only be considered, as at that point the volume is at a maximum. But it is usual here to consider the speed, by increasing which the induction effect is increased. As the work of reducing the pressure has been completed at this point, the reduction necessary to effect a much higher speed of the gases does no great harm.

MORE TIRE INFLATION.

Editor THE AUTOMOBILE:

[1,841.]—Will you please give me further information about Mr. Maxim's tire inflator, described on page 516 of "The Automobile"? He takes gas from the inlet valve on the compression stroke and is therefore using explosive mixture to fill the tire. What effect will gas of this quality have on my tires? Does he not also get a little gas that has been exploded? He uses a check valve above the cylinder stop-cock undoubtedly.

Grafton, Mass. SUBSCRIBER.

As far as the explosive character of the mixture is concerned, but does not make any difference. The illustration of the device shows the check valve above the ordinary cock. Your other questions were answered in the answer to E. F. McNutt.

TO ERADICATE AN EVIL.

[1,842.]—The chauffeur is at the present time getting his semi-annual raking over the coals regarding speeding. They are arresting them quite fast now, and at least they help to raise the debt the city is now in.

When we read in a newspaper how a chauffeur runs over and kills someone, we all line up to have his life for speeding; maybe he was going fast, and maybe not. At any rate, he can choose between being mobbed to death or to escape, and at a moment's thought he speeds away, naturally leaving no doubt that he was responsible for the accident.

Now, if all chauffeurs, when they have an accident, would only stop and ask for witnesses, and give local aid, this idea of lynching would soon leave the people and they would begin to think that maybe the chauffeur is not all at fault. And the judges would not doubt his word so much.

There is no doubt that a good many accidents now occurring could be easily avoided if the public at large would use their eyesight more when crossing an avenue or street, instead of plunging before an automobile or any other vehicle which is going even only eight miles an hour. And another thing: if the people walking could be made to cross the streets at corners I do not think there would be so many accidents as now occur; because drivers would be on the lookout for the people at these points. People will cross the street in the middle of the block, where drivers least expect them.

So, what is to be done? Not only is the chauffeur to be arrested for speeding and reckless driving, but the people ought also be made to cross the streets and avenues at the proper point, or do so at their own risk.

EDWARD VAN BAERLE.

New York City.

NEW YORK'S HIGHWAY COMMISSION IS INVESTIGATING

ALBANY, N. Y., April 9.—That the cost of maintaining and repairing good roads in this State during the next year will cost at least $1,500,000, and that the Legislature will look to the owners of automobiles to meet their share of this expense, were among the points that were clearly set forth to-day when the Senate Committee on Internal Affairs gave a hearing on the Allds-Hamn bill, which among other things imposes a substantial registration fee.

Under the provisions of the bill all owners and operators must be registered with the Secretary of State. The registration tax is fixed at $5 for cars weighing 1,500 pounds or less, $10 if the weight be between 1,500 and 2,500 pounds, and an additional $5 for each additional 500 pounds in weight. The bill exempts the automobile from all other taxation.

Charles T. Terry, representing the New York State Automobile Association, took the position that a tax of this character would be discriminatory and invalid. He maintained that the automobile had a right on the highway and that any tax to be equitable must be met by all users of the road.

Senator Allds asked Mr. Terry why the automobile associations had changed their attitude on the question of a tax since last year. Mr. Terry replied that he had no part in the matter.

"The reports of the Massachusetts Highway Commission," Senator Allds said, "show that the automobiles are responsible for 62 per cent. of the wear and tear of roads. Why should not automobiles meet their share of the expense of maintenance?" "The highways are used by every one, and why should not all users pay?" asked Mr. Terry in reply.

Senator Allds said that the method of road construction must be changed on account of the automobile. He said the roads were now going to pieces and that the State must look to the automobile for at least a part of the expense.

"The care of the highway is a governmental expense," said Mr. Terry. "I deny that the automobile wears the roads more than horse-drawn vehicles. The wear is in another way."

Alfred Ely, of the Automobile Club of America, complained of the excessive penalty for the first offense in cases of violation of the speed law. He favored the provision which requires the payment of all penalties and fines into the State treasury.

Speaking in behalf of the farmers, F. N. Godfrey, master of the State Grange, declared that owners of automobiles should pay a special tax, inasmuch as a special highway tax was assessed upon the owners of farm lands.

Giles H. Stilwell, of Syracuse; George C. Diehl, of Buffalo, and O. A. Quayle, of Albany, took the general ground upon which the argument of Mr. Terry was based.

It is estimated that the registration fee as proposed in the Allds-Hamn bill will yield a revenue of $600,000 a year.

It was argued that the wear and tear on good roads by automobiles has been such that the State Highway Commission will not award any more contracts for good roads construction this year, but will devote its efforts to the 500 miles of additional goods roads work now under contract and to the repairing of the 1,800 miles of good roads now constructed.

The Highway Commission has asked the Legislature for an appropriation of $1,500,000 to repair these 1,800 miles of good roads.

The commission is experimenting with an asphalt cement, which is to be utilized in covering all of the stone macadam roads so far constructed.

Meanwhile the State Highway Commission is investigating the question with a view of revolutionizing road construction in this State so as to produce a road which will successfully meet the wear of the automobile.

SITUATION IN NEW JERSEY IS NONE TOO REASSURING

TRENTON, N. J., April 12.—Of course half a loaf is better than no loaf at all, and for that reason one of the stipulations in the Bradley bill that has been most vigorously discussed in and out of the State may be accepted as the best possible result under the circumstances. It would appear that the new tourist's privilege clause, allowing non-residents to use the roads of New Jersey, is to cost $1 and to be available for eight consecutive days, or four periods of two days each. It is explained that the fee of $1 to accompany the application to be made to the department of motor vehicles is not to be considered a license fee, but simply a payment for the clerical trouble involved in the issuing of the temporary license tag.

To many this looks like an unnecessary imposition upon visitors, in view of the fact that none of the other States are likely to have anything similar when the State Legislatures adjourn, and there is a feeling that there will still be some resentment against visiting Jersey.

There are three other main changes included in the so-called Bradley bill. The most important of these is the reduced fee for justices of the peace and witnesses in automobile cases. The second change raises the speed limit from 20 to 25 miles an hour in the open country where the houses are on an average of more than 100 feet apart. The third gives the commissioner of motor vehicles power to grant a temporary license for persons learning.

To clear up the confusion with regard to the Bradley bill, embodying changes in the main automobile law, a conference committee composed of three members of the Senate and three members of the Assembly has been appointed. The trouble with this measure has been caused principally through an amendment introduced by Assemblyman Young, permitting the use of chains on automobile tires while traveling on gravel roads. This amendment is not one that is wanted by the majority of motorists, and had not been asked for by the Associated Automobile Clubs of New Jersey.

In the matter of obtaining lights on all vehicles, that bill after having passed the Assembly now seems to be reposing in the Senate committee on agriculture, of which George W. Gaunt, master of the State Farmers' Grange, is chairman. Apparently there is going to be some difficulty in rescuing this measure from the committee and sending it to its final vote in the Senate.

SITUATION NOW COMPLICATED IN PENNSYLVANIA

PHILADELPHIA, April 12.—Between the "devil" of the Senate and the "deep sea" of the House of Representatives the legislation specially dear to the hearts of automobilists in this city and State will have a hard row to hoe if it is to emerge from the law mill in a shape satisfactory to anybody. The time to do anything worth while is limited, for the Legislature is due to adjourn Thursday.

In the matter of the automobile code the Senate prefers the Grim bill, while the House swears by the Townsend bill. Each branch passed its own bill and sent it to the other. The House amended the Grim bill till it resembled the Townsend measure, and the Senate reciprocated by torturing the latter into a verisimilitude of the Grim bill. The conference committees of the two houses will have to settle the dispute, but it is greatly to

be feared that both measures will fail from lack of time to finally pass either, or that if one is finally decided upon it will be in such shape that all hands will disown it.

The main point at variance is that the Grim measure would license operators, while the Townsend bill would register the cars, and as additional revenue appears to be one of the main objects, the Senators seem to have the Representatives on the hip, for there are approximately twice as many operators as cars in the State. In the matter of the disposition of the fines, there is also a difference of opinion between the two branches. While the House measure as passed finally divides the fines between the State and the townships, according to the class of offense for which they are inflicted, the Senate bill provides that all such money shall be turned into the State treasury.

The cross-State highway bill is also in danger from almost the same combination of circumstances, although in this case there are no twin measures to bother the conferees. The Governor's heart and soul is in the measure, as he desires it as a movement to his administration, and it is quite likely that in the event of its passage in an emasculated form or of the failure of the conferees to agree, some of the pet measures of those responsible therefor will meet with short shrift at his excellency's hands. This is one strong card the automobilists and others interested in the measure are banking on.

CONNECTICUT WILL WELCOME OUTSIDERS.

HARTFORD, CONN., April 12.—The proposed automobile bill drawn up by the committee on roads, rivers, and bridges of the Connecticut State legislature will be presented to the Senate to-morrow. The new bill contains many changes.

Provision is made for the establishment of the office of commissioner of motor vehicles, as already reported. The registration of all cars will expire December 31.

Non-residents, contrary to the prevailing opinion, will not be subjected to any harsh treatment and will be able to use the highways of the State as heretofore. This feature of the bill is commendable.

The cutting out of mufflers is prohibited.

No one less than 16 years of age can operate a motor car under any conditions. Licenses must bear the signature of the party to whom they are issued, and the fees have been increased.

In the matter of speed, various provisions have been looked to, and in city driving ten miles per hour will probably be the maximum. Another provision of the bill will make "joy riding" a hardship. An owner becomes liable for the driver's actions, whose license may be revoked on the second offense.

OHIO LAWMAKER SAYS "MORE MONEY."

COLUMBUS, O., April 12.—Representative Owen J. Evans, of Stark County, in an interview recently given to his home paper, said among other things: "I am in favor of increasing the license on automobiles in Ohio from $5 to $20 for six-cylinder machines. For two-cylinder machines the license should be $10 a year. I expect to incorporate these figures into a bill which will be introduced at the next session of the General Assembly and which I will ask to be enacted into a law. I am also in favor of asking the General Assembly to appropriate $20,000 for each county in Ohio for the improvement of the highways."

Automobile men are of the opinion that a law providing for a State license of $20 and $10 would be declared confiscatory by the Supreme Court and as a result unconstitutional.

NEW YORK STATE MAY LIMIT RECIPROCITY.

ALBANY, N. Y., April 13.—The Robinson bill which to-day passed the Assembly provides in the matter of registration reciprocity recognition only to those non-residents coming from States and territories which grant similar privileges to New York automobilists. Evidently this action is aimed at New Jersey, since Pennsylvania's new law will grant reciprocity.

Harry S. Houpt Company's New Store, New York City.

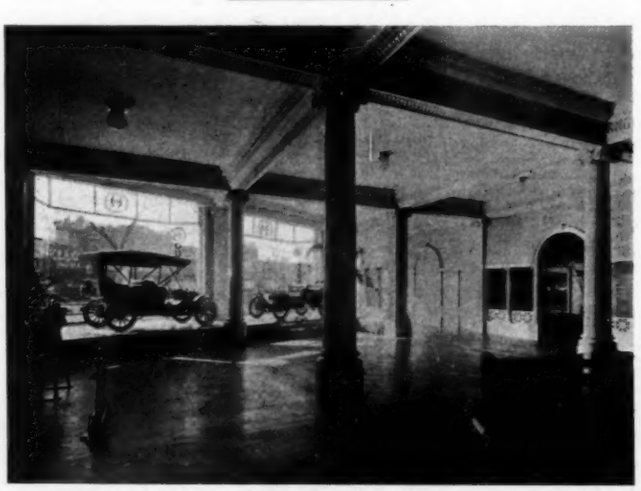
HOUPT OPENS NEW YORK SALESROOMS.

NEW YORK, April 12.—Herreshoff automobiles now have a home of their own in the metropolitan district, through the opening Saturday of the new showrooms of the Harry S. Houpt Company, Broadway and Sixty-eighth street. For some weeks the cars have been shown at the Hotel Marie Antoinette, during the completion of the new headquarters. Mr. Houpt has one of the most beautiful business places along automobile row, with the interior finished in silver and white, arranged to set off to advantage the latest candidate for light car honors. The Houpt cars will also be handled from this location, when they arrive on the market. Office space is on the second floor.

REMY PLANT IS GROWING RAPIDLY

ANDERSON, IND., April 12.—Three thousand magnetos a week will be the capacity of the Remy Electric Company, when the new brick building, 200 feet by 70 feet, is completed. The structure is to be ready for occupation within thirty days. The new building is but the first of several which are to be completed before the beginning of the 1910 season. Conservative figures, based on the present minimum specified deliveries, estimate the 1909 output of Remy magnetos at 60,000.

The new structure will be of brick, fireproof, with plenty of windows and thoroughly modern in every respect. One of the popular departments which will be enlarged by the factory addition will be the shop for making fittings for attaching Remy magnetos to old-model cars. The Remy plant is now claimed to be the largest in the world devoted exclusively to magnetos.



Interior of the Capacious Houpt Salesrooms.

DISTINGUISHING AN ENGINE BY ITS EXHAUST

PARIS, April 8.—Distinguishing the make of an invisible automobile merely by the sound of its open exhaust proved to be a more difficult task than the contestants had anticipated. There were twenty-two competitors united in a Parisian garage last Sunday morning, and twelve different cars, varying from a one-lunger Sizaire to a lordly 60-horsepower Mercedes, on which the twenty-two had to try their acoustic powers.

Each motor was started up in turn before the competitors and allowed to run for a few seconds with its exhaust pipes removed. The names of all the cars except one had been announced in advance in order to give the intending competitors an opportunity of training. The exception was Charles Y. Knight's sliding-valve engine, built by the Daimler Company, of England; when the time came for it to give the preliminary unmuffled bark the mechanic was still struggling with the exhaust pipe connections, and to save time the competitors were sent behind the heavy curtain without having heard the notes of the exhaust. The engine being quite new to France, it is doubtful if any of the mechanics present were acquainted with its sound.

The first car to be run alongside the heavy curtain behind which the competitors were massed was a four-cylinder Minerva, which proved one of the most difficult to recognize in the whole group. A 1909 four-cylinder Renault followed and for the space of sixty seconds abandoned its pretension to be the most silent car in the world. A Bayard-Clement quickly took its place and added further variety to the exhaust solos. The little Gregoire two-cylinder must have been an easy one for the men behind the curtain, for it was the only twin cylinder under test.

The Sizaire-Naudin one-lunger was equally easy, for there was an unmistakable harshness from its high-speed, high-compression engine. A large Panhard emitted its cheerful healthy hum, contrasting strongly with the harsher and sharper bark of the 1909 Mercedes which immediately followed. The little Lion-Peugeot one-lunger, too, made a strong contrast with the Sizaire-Naudin, although the two were almost identical in power and bore of cylinder. The Delage diminutive four-cylinder had more of a hum than a roar, and should not have deceived any who had previously listened to its sound.

The Knight sliding-valve engine, that nobody had heard before, and that was looked upon as the stumbling block of the competition, proved to have such a soft muffled sound, even with the exhaust box removed, that nobody could be deceived. A four-cylinder Gregoire added its contribution to the solos, and the last note to be heard was the strident cry of a four-cylinder Mors.

The competition was rendered the more difficult from the fact that the exhaust piping was not entirely removed in all cases. This was left to the appreciation of the mechanics, and where it was more convenient to do so the piping was removed at the engine itself; in other cases disconnection was made where the tubing entered the exhaust box; in a few cases an exhaust cutout was brought into use. Obviously the sound was modified according to whether the exhaust passed directly into the air or first traveled along several feet of piping.

After examination of the papers it was found that the winner was Victor Gros, a nineteen-year-old mechanic, who had correctly named eight of the twelve machines. M. Leguen, a veteran mechanic, really paired with his young rival, giving eight out of twelve, but as he had not attempted to designate the remaining four, he was put into second position. Drouet and Poupelin, both young mechanics, each correctly named six cars out of a possible twelve, and M. Fontaine, a young soldier in an engineer regiment, shared fourth prize with M. Docrine, each having five correct answers out of twelve. Five others gave three correct answers, while the rest could do no better than two, one and nothing.

The winner failed on Minerva, Delage four-cylinder, Mors, and Gregoire four cylinder; the second man found his stumbling blocks in Minerva, Gregoire, Mors and Renault.

FRENCH SALON LOOKS IMPROBABLE NEXT WINTER

PARIS, April 8.—Of the four associations jointly responsible for the Paris Salon the two most important are so stoutly opposed to the event that its abolition for 1909 is practically certain. The executive committee, presided over by Gustave Rives, and responsible for the organization of the fashionable exhibition in the Grand Palais, is recruited from the Automobile Club of France, the Chambre Syndicale de l'Automobile, the Chambre Syndicale du Cycle et de l'Automobile, and the Syndicat des Fabricants de Cycles. Profits arising from the Salon are carried to a reserve fund in the name of the four interested parties.

The Automobile Club of France, only a certain proportion of whose members are actively engaged in the industry, believes that the show should be continued, and has voted accordingly. In this, of course, they are only looking to their own interests, the Salon always having been a source of profit. The comparatively unimportant Syndicat des Fabricants de Cycles, not having to bear much of the expense of costly exhibitions, has also voted in favor of the retention of the Paris Salon.

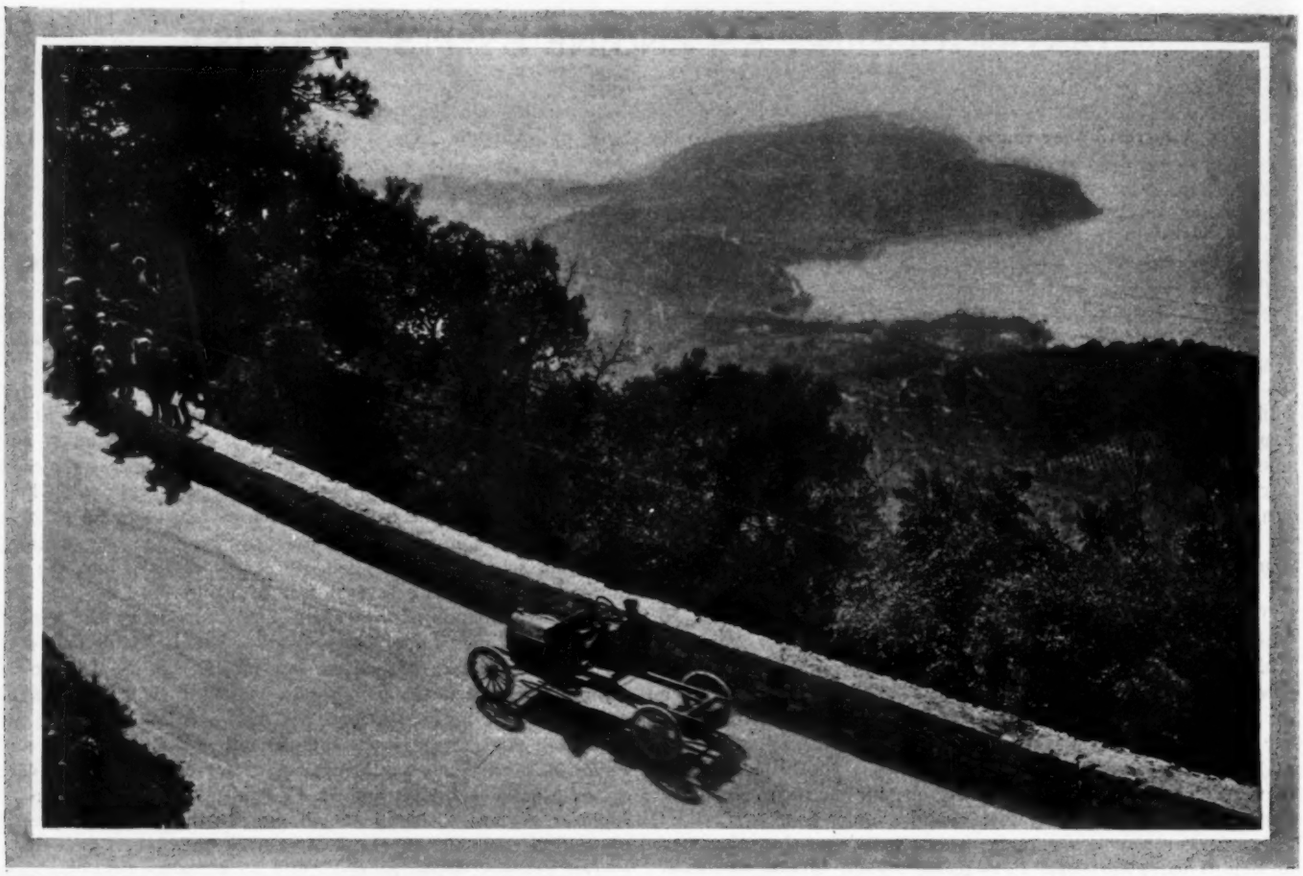
The Chambre Syndicale du Cycle et de l'Automobile, under the presidency of M. Darracq, has declared by a large majority against the holding of a show in 1909. The Chambre Syndicale de l'Automobile was capable of deciding either for or against the show, and particular importance therefore attached to the meeting of its committee this week when the Paris Salon came up for consideration. The Marquis de Dion, president of the Chambre Syndicale, fought stoutly for the retention of the annual show on the grounds that it was necessary for the complete development of the industry. The members of his committee, however, were not all of the same opinion, and after a wordy battle lasting two hours, the vote was 11 for and 10 against, with 2 blank.

The anti-show vote has still to be ratified by the full assembly of the Chambre Syndicale, and if this is done it is difficult to understand how the Paris Salon can be held. The Marquis de Dion declares that if the full meeting of his association votes in favor of the abolition of the show he will resign his position of president and work with the Automobile Club of France for the holding of the show. A salon, however, in which none of the leading firms will take part is not worthy the name of national.

MICHELIN GIVES BRITISH AERO PRIZE.

LONDON, April 3.—The Michelin prize has done so much to help on the progress of aviation in France that great interest has been evinced at the news that the tire firm has offered a British Michelin prize to the Aero Club of the United Kingdom. The prize takes the form of a $2,500 trophy, and a further sum of $2,500 will be awarded to winners during the next five years.

The contest is limited to British aviators employing British-built machines, and, as with the French prize, the winner will be the one who flies the greatest distance over a certain specified course. The minimum distance for each year must be double that of the preceding year till the 250-mile mark has been reached. Should the prize not be gained during any one year, the money endowment would be added to that of the next year.



How La Turbie Is Conquered These Days

By W. F. Bradley

PARIS, April 5.—The past week saw the revival of the once famous hill-climbing contest of La Turbie, the hill near Nice in the south of France. The events of the meeting, which lasted a week from March 28, were aided by almost perfect weather and plenty of sunshine. The course selected was 6 kilos 400 meters long (3.974 miles), with a practically perfect surface, but a few bad turns. At these some of the less fortunate contestants turned turtle, but no one was hurt. This was indeed fortunate, considering the circumstances under which the races were formerly abandoned as well as for the drivers themselves, taking into account the speed at which they were traveling and the nature of the curves. Among the cars which overturned, but fortunately were not damaged, were a Mors, Berliet and Darracq, with such skillful drivers "up" as Hallut, Whitlock and Ragusa.

The two things that stand out most prominently in the result are the performances of Sizaire and Bayard-Clement. The latter won a double victory, taking first place in each of two in the total of nine classes, which brought corresponding honor because no other make scored in more than one contest. These classes were the two-cylinder, any bore or stroke, and the four-cylinder, limited to 75-85 mm. (2.95-3.35").

This was completely overshadowed by the victory of the cars bearing the name of Sizaire & Naudin. These little "one-lungers" not only won the monocylinder event, but took second, third, fourth and fifth in the same. Not content with this, Sizaire, who drove the winner, made the second fastest time of the week, being beaten only by the Opel, with a four-cylinder machine of 115 mm. (4.53") bore, the limit in its class. This means, also, that Sizaire not only hopelessly outclassed all other single-cylinder cars, but went over the severe course in less time than all of the two-cylinders, all fours except Opel, and all sixes. It was a sweeping victory for the car with a single lung.

Of equal importance with the two sterling performers just mentioned was the new Daimler car from the Unterturkheim works and fitted with the Knight engine which has caused such a furore in the past few months. This marked the first appearance of the Knight-Daimler engine in competition, and its performance was as a consequence watched very closely, more so than any other car present. This class was the fifth and for engines of any bore greater than 96 mm. and less than 105 mm. The limits just let in the model now rated at and sold as a 22-horsepower machine. The car and engine behaved very well and won second place in the division. The time made was 7 min. 29 3-5 sec., which brought it rather close to the winning La Buire.

The complete summary of the hill climbing results follows:

Class 1—(Single cylinders)George Sizaire (Sizaire & Naudin), time 6 mins., 12 2-5 secs.

Class 2—(Two cylinders) Albert Roux (Bayard-Clement), time 13 mins., 57 4-5 secs.

Class 3—(Four cylinders of 75-85 mm. bore) Louis Sharp (Bayard-Clement), time 8 mins., 7 2-5 secs.

Class 4—(Four cylinders of 86-95 mm. bore) Paul de Latzger (Laurin-Klement), time 6 mins., 42 1-5 secs.

Class 5—(Fours of 96-105 mm. bore) Paul Scoffier (La Buire), time 7 mins., 10 2-5 secs.

Class 6—(Fours of 106-115 mm. bore) Lindpaintner (Opel), time 6 mins., 0 1-5 secs.

Class 7—(Fours of 116-130 mm. bore) Juge (Pilain), time 7 mins., 38 4-5 secs.

Class 8—(Six cylinders) Schneider (Rochet-Schneider). time 7 mins., 21 secs.

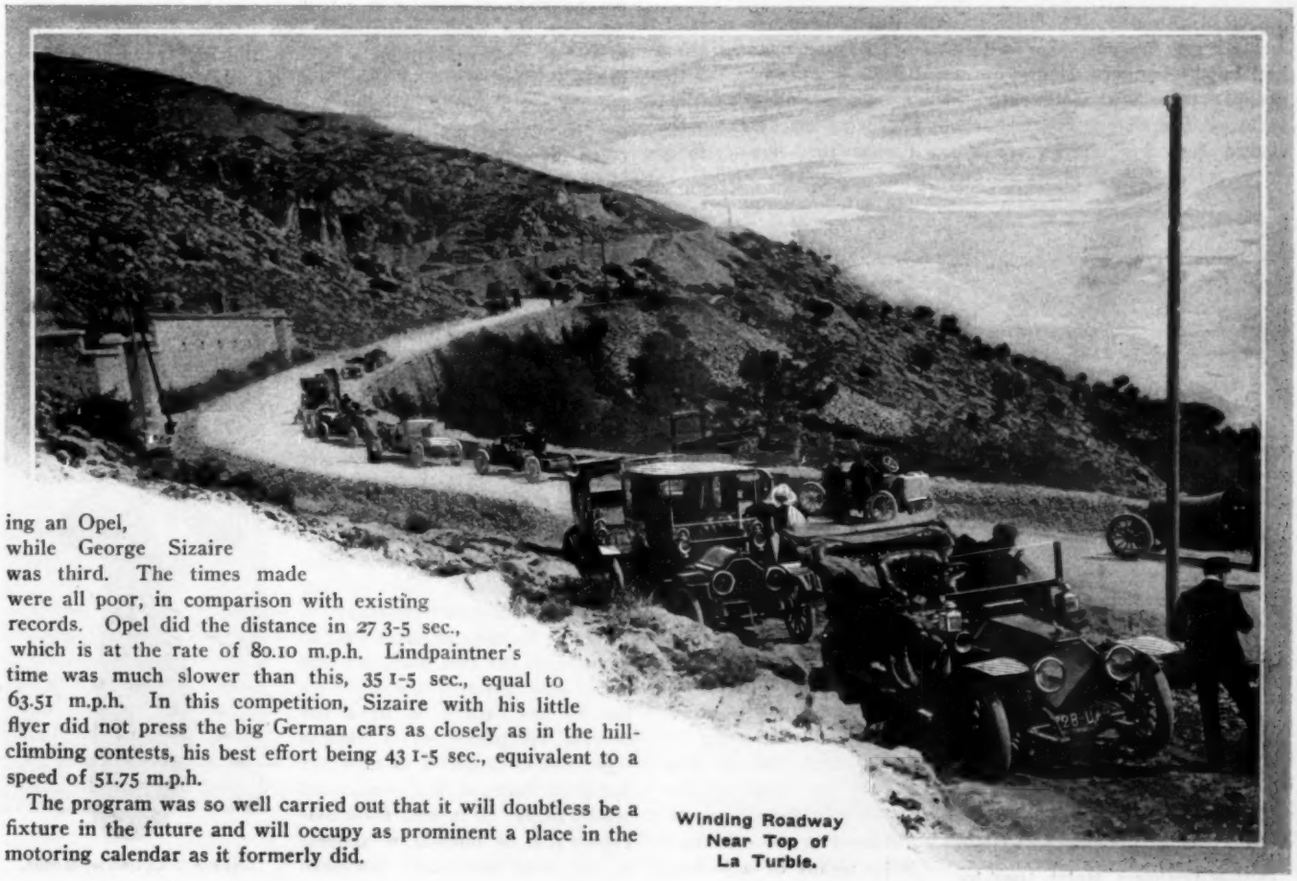
Class 9—(Voiturettes, Grand Prix type) Chevillot (FEN), time 10 mins., 36 1-5 secs.

The former course differed from the one used mainly in length, the greater distance of nearly 16 kilos requiring the use of the present course and some distance on each end of it. The races have aroused all of the old enthusiasm which this week of contests always brought out and which continued up to the year of misfortune, when Zabriskie was killed and the meet abandoned.

Three days previous to the hill climbing the flying kilometer trials were held, with results very similar. The fastest time was made by an Opel, in class 7; the next by Lindpaintner, also driving an Opel, while George Sizaire was third. The times made were all poor, in comparison with existing records. Opel did the distance in 27 3-5 sec., which is at the rate of 80.10 m.p.h. Lindpaintner's time was much slower than this, 35 1-5 sec., equal to 63.51 m.p.h. In this competition, Sizaire with his little flyer did not press the big German cars as closely as in the hill-climbing contests, his best effort being 43 1-5 sec., equivalent to a speed of 51.75 m.p.h.

The program was so well carried out that it will doubtless be a fixture in the future and will occupy as prominent a place in the motoring calendar as it formerly did.

Lindpaintner and His Winning Opel on Course.



Winding Roadway Near Top of La Turbie.

Problems of Aerial Flight Are Being Solved Rapidly

Santos-Dumont Getting Ready for His Monoplane Flights at St. Cyr, near Paris.

PARIS, April 9.—To-day M. Santos-Dumont made a successful flight with his new monoplane, the *Mademoiselle,* at St. Cyr, near this city, covering a mile and a half with great ease. Santos-Dumont has consistently adhered to the idea that a monoplane could be constructed that would prove practical, and his triumph over the forces of nature on this occasion gives great satisfaction to Europe's pioneer aeronautical engineer and his many friends.

His monoplane, which holds the record for lightness and diminutive size, weighs but 330 pounds, and is simplicity itself in its construction. The power plant, which is a Duthiel-Chalmers, two-cylinder opposed air-cooled engine, is located above the main bearing surface of the two main wings, and in the slight angle formed by them. The aviator's seat is located under the motor and the wings, and is a piece of canvas but five or six inches above the ground.

Farman Is Busy on Aeroplane of Special Design.

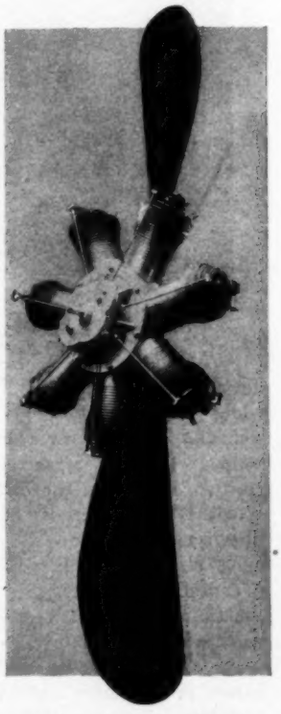
PARIS, April 7.—Dissatisfied with the little progress made during the past year with the flying machines furnished him by the builders, Henry Farman has broken away from the group and is now at the head of his own aeroplane building factory. The change affects not only the flying machine, but the engine also, Farman having decided that the eight-cylinder water-cooled engine is not good enough for his work and has ordered a seven-cylinder air-cooled rotary engine recently produced by the Gnome Company.

Duthiel-Chalmers Motor, Used by Santos-Dumont.

The engine has its seven cylinders radiating from a circular crankcase through which passes a stationary, hollow one-throw crankshaft. The cylinders are of nickel steel, and when first constructed had radiating flanges of equal depth descending down to near the end of the stroke. Shop tests showed, however, that 15 pounds of metal per engine could be saved by gradually lessening the depth of the fins as they neared the base of the cylinder. Method of attachment to the crankcase is by means of a locking ring fitting over the base of the cylinder within the case. There is not a single projecting bolt on the face of the crankcase to receive the cylinders.

There is one main connecting rod with integral big end, and to this are attached the six other connecting rods in practically the same way as the upper end of the connecting rod is attached to its piston in standard automobile practice. The main connecting rod is fitted to the crankshaft with ball bearings. Exhaust valves are in the cylinder head, and are operated by balanced rocker arms. The inlets are in the piston head, and are consequently automatic. The firing charge arrives through an intake pipe passing through the hollow crankshaft, then passes behind the piston through the valve in its head, the carbureter, of an ordinary type, being stationary while the rest of the engine, including the magneto, is revolving.

On the Farman aeroplane the propeller, a wooden one, constructed by Chauviere, is mounted on the rear of the crankcase. The forward face of the crankcase, on which are mounted the timing gears, is covered by a torpedo-shaped aluminum casing to decrease the wind resistance. The engine develops 50 horsepower at 1,200 revolutions a minute, and they have been able to prove during the shop tests, will throttle down as low as 250 revolutions a minute without a misfire. The control is entirely on the throttle, the sparking point being fixed. The strong draught caused by the revolutions of the engine keeps the cylinders wonderfully cool. Even after two hours' steady running on the testing block the steel cylinders are hardly discolored and it is possible to touch them with the naked hand. Naturally the conditions in the open air will be still more advantageous.



Gnome 7-Cylinder Motor, Used by Farman.

Lubrication is taken care of by centrifugal force. An ordinary type of oiler is carried in some convenient position on the aeroplane, its supply of lubricant being delivered to the main bearings by a single pipe passing through the hollow crankshaft.

Henry Farman declares that in addition to the two machines that he is now building for his own use he has orders on hand for several aeroplanes of a similar type, and is prepared to turn out flying machines with a guaranteed ability to fly. It is with these machines that he intends to compete in the most important European this year.

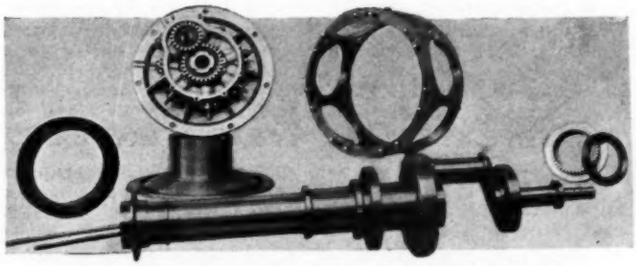
ENGINES AT BRITISH AERO SHOW.

LONDON, April 3.—At the Aeroplane Show, which has now closed its doors after a successful run, special interest was attached to the engine section, for here there was not that unfinished and doubtful air which seemed to be characteristic of the aeroplane exhibits themselves.

The British exhibits were not many in number, for several of the leading manufacturers who are known to be experimenting have, naturally enough, no desire to seek publicity for their efforts at present, but the engines that were on view showed a commendable originality of design and good workmanship.

Wolseley.—The Wolseley Motor Company exhibited two engines which were excellent representatives of their class. The first was built for aeroplane work and has eight V cylinders set at 90 degrees. The cylinders are 90 mm. bore by 125 mm. stroke, and 60 horsepower is developed at 1,350 revolutions per minute. The water jackets are of sheet aluminum and are attached to the cast steel cylinders by a row of screws. The induction and water pipes are also of aluminum. Forced lubrication to all bearings is effected by a gear pump. This engine, weighing five pounds per horsepower, has been constructed for a British monoplane, which is almost ready for its trials.

A second engine on this stand is designed for a dirigible balloon. The eight vertical cylinders of 165 mm. bore by 178



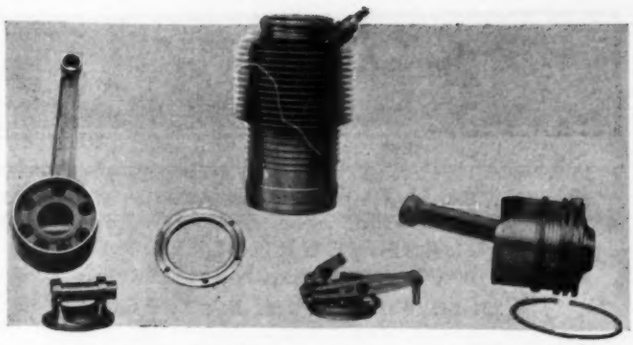
Crankshaft and Details of Gnome 7-Cylinder Motor.

mm. stroke develop 200 horsepower at 1,000 revolutions per minute. The jacket and pipes are of aluminum.

Aster.—Of the several other firms who showed engines with vertical cylinders, the Aster Company attracted special attention with the Green engine. These engines, which have four vertical cylinders for the lower powered models and eight V cylinders for the 80 horsepower type, work on the standard four-cycle principle, but the constructive details are quite original. The cylinders are separate steel castings machined all over, with cylindrical valve chambers projecting from the head. The water jackets are pressed in one piece from sheet copper and are open at the bottom end and closed at the top. When in place the bottom end slides over a rubber ring carried in a groove in the cylinder casting, thus making a water-tight joint and allowing for expansion. Above the cylinder head, the jacket presses on collars turned on the cylindrical valve seatings and are finally held in place by the aluminum domed valve covers.

A single overhead camshaft operates the valves through rock levers. These levers are all enclosed in an oil-tight aluminum casing and the whole arrangement can be hinged back out of the way when a valve is to be removed. The cylinder holding-down bolts also hold the five substantial crankshaft bearings.

New.—The New Engine Company is the first well-known British firm to adopt the two-cycle engine, and its production seems quite an advance on existing types. The 40 horsepower model has four steel cylinders, 4 1-2-inch bore by 4-inch stroke. The exhaust ports open when the piston has traveled half way down on its stroke, the burnt gases discharging direct into a silencer. A little further in the stroke the inlet ports are uncovered and a blast of air is blown in, driving out the remainder of the products of combustion. The air blast remains in operation till the end of the stroke and is then diverted by a rotary valve into an aluminum jacket surrounding the cylinders, replacing the usual water jacket. At the commencement of the

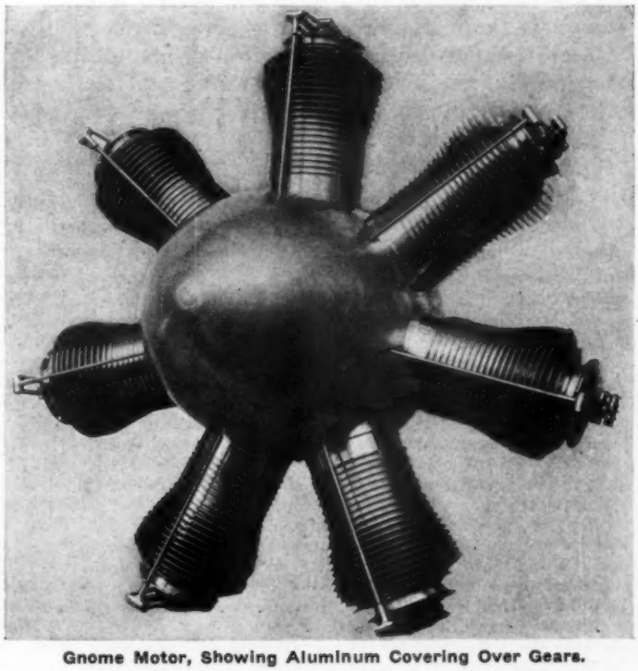


Cylinder and Piston of Gnome Motor, Dissembled.

upward stroke a charge of very rich mixture is admitted to the cylinder through the rotary valve and the resultant explosive mixture is compressed and fired in the usual way.

International.—The International rotary motor is another British production that works on novel lines. The two cylinders are opposed, and with each is cast half of the crankcase. The propeller shaft is attached to a ring bolted to the cylinder castings, while the crankshaft, with its two cranks at 180 degrees, remains stationary. The gas is drawn through a non-return valve into the crank chamber, and as the pistons come together the gas is forced into one cylinder or the other alternately through an external pipe. The inlet and exhaust valves are mechanically operated and no springs are used, the valves closing themselves quickly by centrifugal force. The ignition is by Bosch magneto and the current is conducted to the plugs through two spring plungers working on slip rings.

Continental Makes.—All the best known Continental engines that were to be seen at the Paris Show were staged at Olympia, and in many cases improvements have been effected during the interval. The R. E. P. engine is now made in a 10-cylinder type, rated at 40-50 horsepower, in addition to the five and seven-cylinder models previously supplied. In all these engines the cylinders are set fanwise in two rows, the rear cylinders covering the spaces between those in the front row. The 50-horsepower Gnome has seven radial air-cooled cylinders, and these revolve around the stationary crankshaft. Other engines are the Gobron-Brillié, which has four cylinders arranged like an X, and the eight-cylinder V models of Renault and E. N. V., the former air cooled and the latter water cooled.



Gnome Motor, Showing Aluminum Covering Over Gears.

THE AUTOMOBILE

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H. M. SWETLAND, President
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MAKING THE AUTO PAY FOR THE ROAD.

Desire is plainly evident in not a few State legislatures now in session to saddle upon the automobile owners a greater part of the cost of the upkeep of the highways. If the matter were left to a popular vote of all owners of motor-driven vehicles, it is not improbable that the decision would be favorable to a graduated annual tax, provided all other users of the highway were asked to pay their just proportion.

Once upon a time the New York *Times*, now progressive, suffered from an acute attack of automobile antagonism. But a change has come in its ideas—many other daily newspapers have had similar revisions of opinion—and we reprint concerning a proposed New York State law the following editorial which it printed it under the head of "A Motor Car Tax":

A graduated tax levied according to the weight of the machines is proposed in the Allds-Hamm bill, which prescribes rules to register, identify, and regulate motor vehicles and their operators on the public highways. The purpose of the tax is "to raise nearly enough money to repair the damage they do to the good roads." It will cost $1,500,000 to repair the 1,800 miles of "good roads" already built in the new State system which have been raveled by autos.

For two reasons we think the proposed tax is unjust. If it is to be imposed, proportionate taxes should be applied to other vehicles using State roads. The Constitution requires this. Secondly, it is not the fault of the automobilists or of their machines that the roads are in their present plight, but the fault of the road builders. They have stupidly persisted in dressing their surfaces with a finely comminuted material which they well knew must be displaced and thrown to the rear by the so-called suction of rubber tires.

It is self-evident that the wearing surfaces of roads should be suited to the vehicles that traverse them. The newly created State Highway Commission has wisely decided not to award contracts for further construction of "trunk-line boulevards" until some one of the special surfacings of bitumen or oil with asphaltic bases shall have been adopted. Meanwhile, it would be manifestly unfair to tax motor cars or other vehicles for blunders of highway builders.

It is a fact daily becoming more apparent that the present highway is not suited to the increased demands made upon it, caused principally by the multiplied mileage of the motor-driven vehicle, and a remedy must and will be found by those entrusted with our roads building. It is far from probable that all macadam roads now being constructed are given the same careful building as was received by their predecessors. Only recently did some of the discerning politicians become aware of the fact that the people as a whole want good roads, and that in their building there might be opportunties of profit to those directing the expenditure of the public money. Roads have worn out much faster in some sections than in others, with indications that supervision might have been faulty and negligent.

But the roads question is one that is vital to a commonwealth as a whole, and, realizing such to be the case, it is predicted that the problem will be solved ultimately in a satisfactory manner.

* * *

CLASSIFICATION WILL CLEAR ATMOSPHERE.

With the definite and comprehensive classification of cars adopted by the rules committee of the Manufacturers' Contest Association, and by it recommended to the Contest Board of the A. A. A., it begins to be apparent to the lay mind that a much mixed situation is gradually being improved. Only time will prove the wisdom of the rules, but clarification on the subject of contests is an obvious necessity which has called for attention.

There have been contests and contests, each different from the previous one. Price, weight, piston displacement, various curious formulas, and all sorts of classes existed, and, upon application, were sanctioned. The result was that it was hard to decide whether a winning car really showed merit or not. The car that won in one unique class would be hopelessly left behind in the next contest with some other unusual arrangement.

To have a real comparison of the performance of two different cars, it is first necessary to have a uniform series of performances under standardized conditions. This heretofore has not been available because of haphazard classes, varying at every opportunity. Now that the manufacturers, who are the ones vitally interested in a real comparison, have stepped in, and, through the medium of their representatives, placed themselves on record as in favor of standardized tests, and deduced a set of acceptable standards, this matter has been reduced to its understandable terms.

In the future, acting under the new standards, the results obtained in the East will be comparable with those which take place in the West. The races everywhere being upon one basis, it will be possible at the end of the year to deduce the best American car in any desired class. Except that some one prominent maker absents his product, this yearly summary will be beyond question trustworthy. It begins to look as if the final result will have a very great value to all concerned.

N. A. A. M. EXECUTIVE COMMITTEE BELIEVES IN M. C. A.

PLAINLY expressed and subject to no misinterpretation was the pronounced manner in which the executive committee of the National Association of Automobile Manufacturers at the regular monthly meeting, held April 7, in New York City, placed itself upon record as approving the alliance between the Manufacturers' Contest Association and the American Automobile Association. The session was held as usual at the association's headquarters, No. 7 East Forty-second street, and the full text of the resolution is herewith given:

Whereas, The interests of automobile manufacturers in contests of all descriptions are well represented by the Manufacturers' Contest Association, to membership in which all manufacturers are eligible and to which a large number of manufacturers have already applied for membership; and

Whereas, A formal alliance has been entered into between the Manufacturers' Contest Association and the American Automobile Association, one of the conditions of which alliance provides for an advisory committee representing the manufacturers and appointed by the principal trade organizations, which committee takes an active part in the deliberations of the contest board of the American Automobile Association; and

Whereas, The interests of the trade demand not only the maintenance of such an association but active participation by it in matters relating to contests of all descriptions; be it

Resolved, That members of the National Association of Automobile Manufacturers, Inc., be and are hereby respectfully urged to apply for membership, to take an active interest in and to loyally support the Manufacturers' Contest Association and its rules; and be it further

Resolved, That the Manufacturers' Contest Association will act in accordance with the desires of this association by giving full publicity to its regulations and decisions, and by taking such definite action as will disbar from events sanctioned by the American Automobile Association all persons or organizations who or which take part in, or in any other way support any event not so sanctioned.

W. E. Metzger, the first vice-president, presided in the absence of President S. D. Waldon, who was unable to attend. These were the other members of the committee present: S. T. Davis, Jr., Locomobile Company of America; Windsor T. White, the White Company; Thomas Henderson, Winton Motor Carriage Company; William R. Innis, Studebaker Automobile Company; C. C. Hildebrand, Stevens-Duryea Company; H. O. Smith, Premier Motor Manufacturing Company; Albert L. Pope, Pope Manufacturing Company; Benjamin Briscoe, Maxwell-Briscoe Motor Company; L. H. Kittredge, Peerless Motor Car Company; J. W. Gilson, Mitchell Motor Car Company, and C. G. Stoddard, Dayton Motor Car Company.

The Rapid Motor Vehicle Company, of Pontiac, Mich., was elected to association membership.

Atlanta Will Have a National Show.

Preceding the executive committee meeting there was a session in the morning of the show committee, during which there appeared a notable delegation from Atlanta to ask that that enterprising Southern city be placed in the very limited national show circuit, which now includes only New York and Chicago. It was the contention of the delegation from the "Gate City of the South" that a national show would be an excellent investment for the industry, and these were the men who urged Atlanta's claims: Clark Howell, managing editor of the Atlanta *Constitution;* John L. Cohen, S. C. Dobbs, of the Chamber of Commerce; Charles R. Ryan, J. T. Fitten, E. M. Hansom, and E. W. Gans.

The show committee was so favorably impressed with the arguments presented that it voted to recommend to the executive committee that Atlanta have a show conducted directly under N.A.A.M. auspices. At the executive committee's meeting the matter received thorough attention, with the result that S. A. Miles, the general manager, was empowered to conduct final negotiations with the proper parties in Atlanta, to which city Mr. Miles will subsequently pay a visit, perhaps accompanied by Alfred Reeves, of the American Motor Car Manufacturers' Association.

A. M. C. M. A. SELECTS SHOW AND OTHER COMMITTEES

R. E. OLDS will be the chairman of the new show committee of the A. M. C. A., the Committee of Management of which held its monthly meeting at 505 Fifth avenue, April 8. The other members of the committee will be S. H. Mora and Benjamin Briscoe, with Alfred Reeves as general manager. The association will conduct its tenth international automobile show at Grand Central Palace, New York, on dates yet to be named.

The formation of the Manufacturer's Contest Association, for the purpose of taking a concrete interest in racing and contest matters, was unanimously approved, and a resolution was adopted recommending that all members of the A. M. C. M. A. join and support the new organization, which has an agreement with the Automobile Association of America regarding contest matters. It was decided further that the members should be asked to take the matter up with their dealers throughout the country that the actions of the M. C. A. may be fully supported.

A large amount of routine business was transacted, the meeting being in session until late in the day. In attendance at the meeting were: H. O. Smith (Premier Motor Manufacturing Company), chairman; C. G. Stoddard (Dayton Motor Car Company); S. H. Mora (Mora Motor Car Company); G. Vernon Rogers (Mitchell Motor Car Company); W. H. VanDerVoort (Moline Automobile Company); Benjamin Briscoe (Maxwell-Briscoe Motor Company); R. E. Olds (Reo Motor Car Company); Charles Lewis (Jackson Automobile Company; C. C. Hanch (Nordyke & Marmon Company); and Alfred Reeves, general manager. These committees for 1909 have been announced by Chairman Smith:

Show Committee.—R. E. Olds, Reo Motor Car Co., chairman; S. H. Mora, Mora Motor Car Co.; Benjamin Briscoe, Maxwell-Briscoe Motor Co.

Tours and Races.—W. H. Van Der Voort, Moline Automobile Co., chairman; A. C. Newby, National Motor Vehicle Co.; V. A. Longaker, American Motor Car Co.; Walter C. Marmon, Nordyke & Marmon Co.

Good Roads.—Charles Lewis, Jackson Automobile Co., chairman; James Couzens, Ford Motor Co.; R. M. Owen, Reo Motor Car Co.; H. B. Krenning, Dorris Motor Car Co.

Legislation.—C. G. Stoddard, Dayton Motor Car Co., chairman; A. C. Newby, National Motor Vehicle Co.; R. A. Palmer, Carter Car Co.; R. E. Graham, Acme Motor Car Co.; Walter E. Hildredth, Holsman Automobile Co.; Walter S. Austin, Austin Automobile Co.

Finance.—James Couzens, Ford Motor Co., chairman; W. G. Morse, Atlas Motor Car Co.; J. B. Bartholomew, The Bartholomew Co.

Membership.—S. H. Mora, Mora Motor Car Co., chairman; Morris Grabowsky, Rapid Motor Vehicle Co.; W. H. Van Der Voort, Moline Automobile Co.

Advertising and Publicity.—J. N. Willys, Overland Auto Co., chairman; G. B. Louderback, Buckeye Mfg. Co.; Theo. P. Bailey, St. Louis Car Co.; Leon M. Bradley, New York office; Charles E. Duryea, New York office.

Standardization and Technical.—Geo. A. Weidely, Premier Motor Mfg. Co., chairman; John D. Maxwell, Maxwell-Briscoe Motor Co.; Henry Ford, Ford Motor Co.; Max H. Grabowsky, Grabowsky Power Wagon Co.

Freight and Transportation.—G. V. Rogers, Mitchell Motor Car Co., chairman; Harry Knox, Atlas Motor Car Co.; H. W. Mack, Mack Bros. Motor Car Co.; R. Harry Croninger, Pennsylvania Auto-Motor Co.; J. N. Willys, Overland Automobile Co. (In conjunction with traffic department of N. A. A. M.)

Tires.—W. S. Marmon, Nordyke & Marmon Co., chairman; James Couzens, Ford Motor Co.; Frank Briscoe, Brush Runabout Co.; O. Stevenson, York Motor Co.; S. H. Mora, Mora Motor Car Co.

Agencies.—W. H. Van Der Voort, Moline Automobile Co., chairman; A. R. Welch, Welch Motor Car Co.; H. R. Mallow, De Luxe Motor Car Co.; Frank L. Pierce, Gaeth Automobile Co.; H. B. Larzelere, Chadwick Engineering Works.

M. C. A. PRESIDENT EXPLAINS ITS WHYFORE AND PLANS

By BENJAMIN BRISCOE, President Manufacturers' Contest Association.

BELIEVING that automobile contests can be encouraged and improved by support of a concrete nature, such as an organized body of automobile manufacturers can supply, the motor car makers have organized what is known as the Manufacturers' Contest Association, the work of which will undoubtedly be of great importance to the pastime and industry, and the plans of which are naturally of considerable interest at this time.

It is agreed that the automobile makers who supply the sinews of war in speed and other contests should have some voice in the rule-making, but not in the enforcement of rules. There can be no argument as the maker's knowledge of what rules would be best to bring out the merits or demerits of cars for the final edfiication of the geenral public, but, on the other hand, there can be no argument but that the actual government of contests, and the enforcement of the rules generally, should be in the hands of men without trade affiliations of any sort. Undoubtedly in the suggestions which the makers may offer for rules there will be many that, for some reason or other, are not acceptable to the national governing body, and in many cases the final interpretation of rules as made by the governing body of racing may not meet with approval of all makers. It is the difference of opinion which makes contests interesting.

In accordance with the agreement which the American Automobile Association and the Automobile Club of America have, the Manufacturers' Contest Association recognizes the A. A. A. as the national governing body and the A. C. A. in all events of an international character. There is no desire on the part of the M. C. A. to act other than in an advisory capacity, which it will do, always having in mind the best interests of the industry.

There is no denying the fact that there was much to be criticized in the manner of conducting automobile racing in the past. It was said by some of those interested in the sport, however, that the support of all the manufacturers was needed to better conditions, and this is now made possible by the new organization, which enters the field without a thought of what has taken place in the past, but considering only the present and the future.

That the new association can bring about many desirable improvements admits of no argument. It will work for uniform rules, better classifications for racing cars, uniform fees and sanctions, and generally encourage automobile clubs and trade associations to promote contests. It will not hesitate to make recommendations whenever it deems that such recommendations are in order, and in every other way it will work to advance the best interests of motoring, from a competitive and from a business point of view.

At the same time it must always be remembered that the M. C. A. can encourage only those contests that are promoted with due respect for the State laws and the rights of others on the highways. To do otherwise would bring it into disrepute with the lawmakers of the various States and would eventually bring on the heads of motorists generally unfair laws that would make their pastime anything but pleasant. The manufacturers from time to time are represented and have to appear themselves before the various legislative bodies and to do other than consider carefully all phases of open competition on the road would weaken their position in legislative work, which it is agreed, is of more importance than any other department of motoring.

MOSLER'S PURCHASE OF SPARK PLUG PATENTS

MUCH interest has been aroused in the automobile world by the announcement of the sale of the basic spark plug patents by the Association Patents Company, the patent-holding end of the Association of Licensed Automobile Manufacturers, to A. R. Mosler & Company, of New York City. The two patents in question are known as the Canfield and Mueller, and are numbered 612,701 and 582,540, respectively, in the Patent Office. In notifying the trade and public of their purchase of these patents, A. R. Mosler & Company set forth their reasons for acquiring them as follows:

For several years these patents have been the cause of considerable anxiety on our part, because we believe that if any suit had been brought against us upon them and particularly the Canfield patents, we would have been unable to successfully defend such a suit.

The prior art bearing upon these patents was carefully investigated and considered by our counsel and we were advised by him that it was highly advisable for us to acquire these patents and particularly the Canfield patent, which, in the opinion of our counsel, is not anticipated by anything in the prior art and is undoubtedly valid and quite broad in scope.

All manufacturers of spark plugs in this county recognize the value and importance of manufacturing spark plugs each provided with a deep chamber or recess around the electrode for the purpose of preventing an injurious accumulation of soot or other foul matter on the insulation of the electrode. Indeed, all of the well-known spark plugs now upon the market in this country are each constructed with a deep chamber or recess around the electrode and consequently are within the claims of the Canfield patent. This Canfield patent contains two claims which are as follows:

(1.) In a gas, oil or vapor engine igniter or sparker a recess or counterbore around the electrode or electrodes and above its or their sparking-points when said electrodes are used vertically, for the purpose of preventing an injurious accumulation of the products of combustion or other foul matter on the insulation of said electrodes, substantially as and for the purpose set forth.

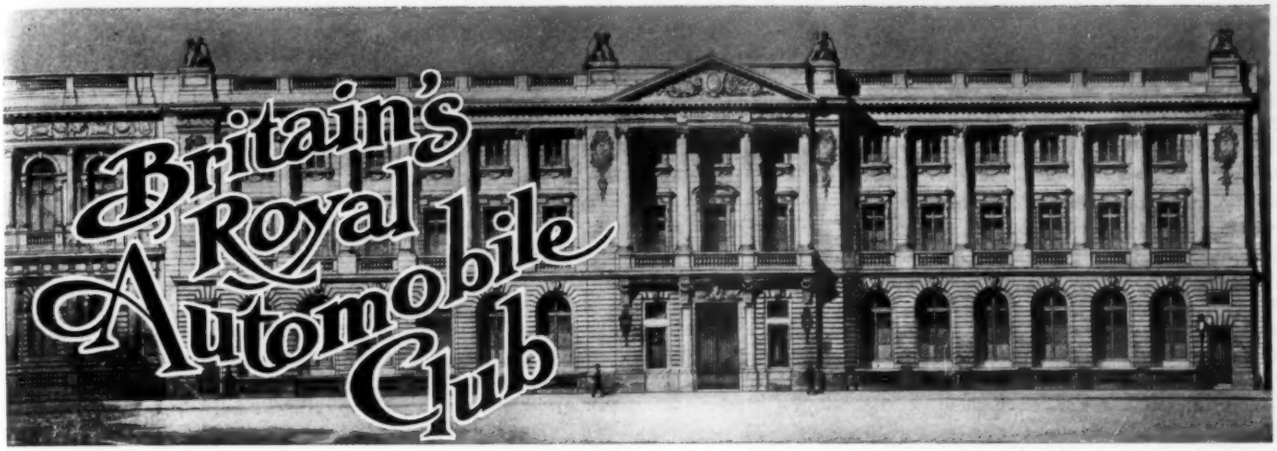
(2.) In a gas, oil or vapor engine igniter or sparker a recess or counterbore of such size and depth as to prevent the explosive mixture used in the cylinder from circulating into said counterbore or recess far enough to come in contact with its deepest part around the electrode or electrodes at or near the point where said electrode or electrodes leave the insulator to enter the cylinder or firing-chamber, for the purpose of preventing an injurious accumulation of the products of combustion or other foul matter on the insulation of said electrodes, substantially as and for the purpose set forth.

The following mentioned members of Association of Licensed Automobile Manufacturers have been licensed under these patents:

Apperson Bros. Automobile Company, Kokomo, Ind.; Autocar Company, Ardmore, Pa.; Chalmers-Detroit Motor Company, Detroit, Mich.; Cadillac Motor Car Company, Detroit, Mich.; Corbin Motor Vehicle Corporation, New Britain, Conn.; Everitt-Metzger-Flanders Company, Detroit, Mich.; Electric Vehicle Company, Hartford, Conn.; Elmore Manufacturing Company, Clyde, Ohio; H. H. Franklin Manufacturing Company, Syracuse, N. Y.; Hewitt Motor Company, New York City, N. Y.; Knox Automobile Company, Springfield, Mass.; Locomobile Company of America, Bridgeport, Conn.; Lozier Motor Company, New York City, N. Y.; Matheson Motor Car Company, Wilkes-Barre, Pa.; Packard Motor Car Company, Detroit, Mich.; Peerless Motor Car Company, Cleveland, Ohio; Pierce-Arrow Motor Car Company, Buffalo, N. Y.; Pope Manufacturing Company, Hartford, Conn.; Royal Tourist Car Company, Cleveland, Ohio; Alden Sampson 2d, Pittsfield, Mass.; Selden Motor Vehicle Company, Rochester, N. Y.; F. B. Stearns Company, Cleveland, Ohio; Stevens-Duryea Company, Chicopee Falls, Mass.; E. R. Thomas Motor Company, Buffalo, N. Y.; Toledo Motor Company, Toledo, Ohio; Winton Motor Carriage Company, Cleveland, Ohio.

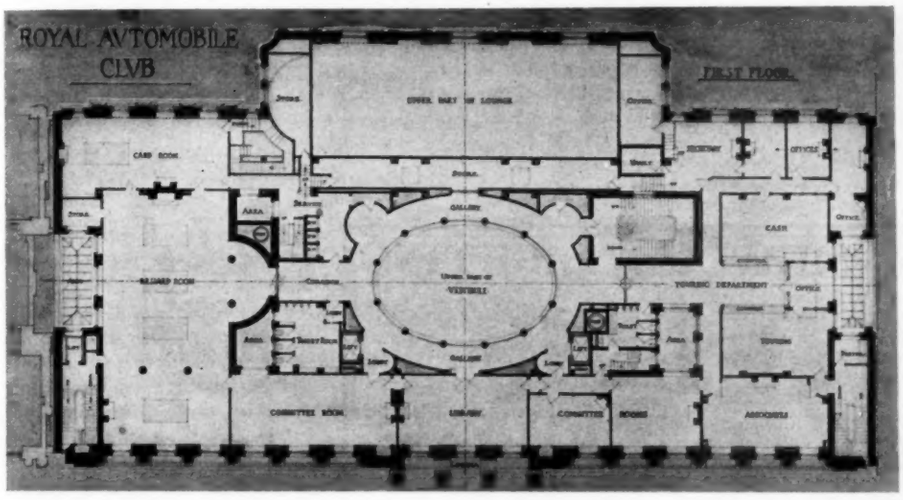
"F. A. L." REPLACES "CAR WITHOUT A NAME."

CHICAGO, April 12.—Announced as "the car without a name," the four-cylinder touring car which has made its début in this city during the past week will hereafter be called the "F. A. L." The initials are those of the three men who are most interested in its production and sale: T. S. Fauntleroy, president; H. R. Averill, general sales manager, and E. H. Lowe, general manager and secretary. Mr. Averill, who has resigned as sales manager of the York Motor Car Company, has stated that the new cars will be entered in all contests in its class, including the light car race near here, the Savannah light car race, the Quaker City Motor Club Founders' Week race, and all endurance contests. It will be seen in the Glidden tour, the Motor Club of Harrisburg run and other events of importance.



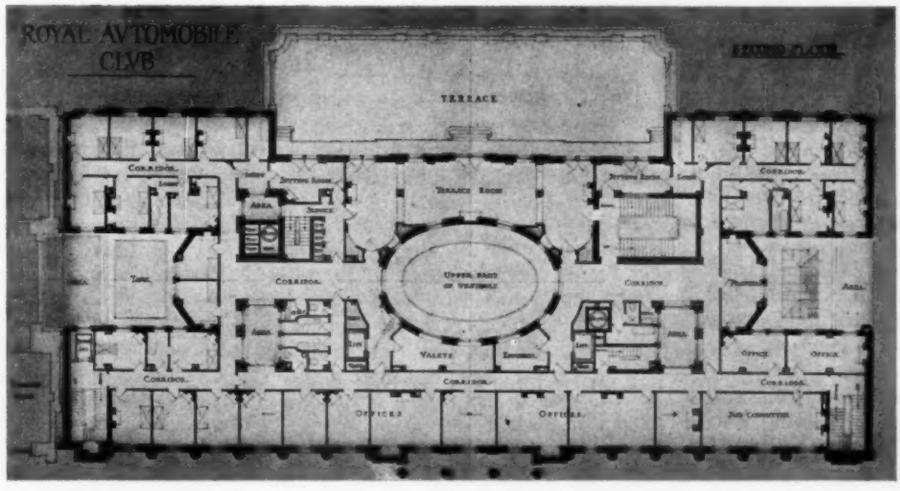
FROM Francis S. Swales, a London architect and correspondent of *The American Architect,* New York City, comes a story concerning the new clubhouse of the Royal Automobile Club. Mr. Swales contributes the following:

It is interesting to note that another example of the French influence will soon be found in Pall Mall, on a part of the site occupied by the old buildings—formerly the War Offices—between the Carlton Club and St. James' Royal Palace grounds, in the new home of the Royal Automobile Club. Pall Mall (though it possesses a few aberrations) has been more fortunate than most of London's principal streets, in so far that the newer buildings have been for the most part at least the equals in design of the older structures which they have replaced. The "old" building of the Alliance Assurance Company, opposite St. James' Palace, erected some twenty odd years ago, is one of the designs which helped to make the name of Norman Shaw famous. The new building facing St. James' Street, to which the company not long ago removed its offices, is the joint work of Norman Shaw and Ernest Newton, and two shops built on the north side of the street are rather good work by well-known men; but when it was known that the old War Offices—a group of good old structures, including York House, designed by Sir John Soane—were to be demolished, disapprobation became pronounced and general.



English sentiment breeds reverence for anything that is old, regardless of whether or not the object be worthy of it, which, so far as architecture is concerned, may be understood when one looks upon the good, if commonplace, old structures and then upon the pretentious "improvements," one grasps in an instant the national antipathy to "improvements," sympathizes with it and gives the protesting public credit for at least good judgment. The old War Offices were just such commonplace old buildings, with nothing remarkable about them—only plain—not particularly refined—just inoffensive, and the improvement will be a real one. The Royal Automobile Club is to be built from the designs of Mews & Davis, architects, with whom is associated E. Keynes Purchase, the Honorary Architect of the club. The preliminary drawings and photographs of the model accompany this letter and show the design as it will be carried out with the exception of a few changes in the details, which will be effected in the study during the progress of the work.

Impersonal, if not strictly monumental, architecture has been the rule for the best clubs of the "West End," high renaissance being the type of design which has prevailed in Pall Mall. Of the row of clubs extending from Waterloo Place to St. James' Palace (which includes the Athenaeum, Travelers', Reform and



Carlton) the façade of the Travelers' is based upon the design of the Pandolfini Palace in Florence and that of the Carlton upon the Library at Venice. The Royal Automobile Club, which will adjoin the Carlton, follows the precedent, more or less adopted by the other clubs, and owes its inspiration to the former Hotel Crillon-Coislin—now the Automobile Club—in the Place de la Concorde, Paris. It would be difficult to find a more beautifully studied example of modern architecture than the fine fronts by Gabriel facing the Place de la Concorde—there are two buildings, exactly alike, the former Hotel Crillon-Coislin and the Minister de la Marine—second only to Perrault's Colonnade of the Louvre—if indeed to that—this is among the finest columnar façades in the world. It is extremely improbable that any classic design to equal this will be built in England during the lifetime of any one now living, so that any architect who would emulate Gabriel must needs do so in much the same spirit that he might attempt to emulate the Parthenon or the Sainte-Chapelle—to attain as near as the conditions permit the same character of refinement, simplicity and strength.

This character is expressed to an unusual degree in the design for the new Royal Automobile Club. It is large in scale, an essential to monumental effect; the proportions of the *travée* are nearly the same in elevation as those of the buildings by Gabriel, but the effect will be quite different in perspective, due to the column being engaged instead of part of a free screen. Again, in elevation, the central feature of the new building is similar to the end pavilions of the old, but the effect here will also be different—in the French example the corner columns under the pediments are engaged to the pylons and the two middle ones though free are only a half diameter from the pilaster behind. In the building to be erected in Pall Mall the corner columns will be a half diameter in front of a pilaster on the corner of the pylon against which the portico returns, while the middle ones are in screen, due to the wall face being recessed below the pediment to form a loggia. This latter effect is usually a weak one, giving, as a rule, the impression of two buildings joined together, but the present treatment—the latest studies show the pylons at the ends and those at either side of the pediment brought to the same face—slightly in front of the bases of the columns—and the balcony over the entrance door only, thus doing away with the console below the corner columns and placing the balustrade at either side of the balcony between the pedestals to columns instead of in front of them—a distinct improvement upon the elevation sent herewith. The mass of masonry forming an attic behind the pediment now projects beyond the face of the pylons. This arrangement produces the effect, in the model, of a strong frame of masonry round the void in the center and appears to effectually unify the whole front. It will be interesting to see how this will work out in execuation. Internally the building is treated in the "grand manner." There is an uninterrupted vista from the Pall Mall entrance through to Carlton House Terrace. The elliptical vestibule is 48 feet by 32 feet and runs through two stories and is 50 feet high to the ceiling over the central portion. The dining room at the east end and the club room at the west are each 93 feet by 35 feet, and the "Lounge," which on occasions may be used as a lecture room, 108 by 40 feet, including the platform, and 35 feet high. The basement contains a gymnasium and extensive baths, which are accommodated in rooms which are 28 feet high. Included in the baths is a swimming pool 30 by 75 feet.

The Royal Automobile Club will be the first important club building built in London for several years, as a monumental structure of the kind, the only one for many years more. As architecture it bids fair to rank high among the best work of this century in England.

THE new lighting law in France, like most new laws promulgated by a paternal government, in France and elsewhere, which are supposed to be justly applicable to the automobile, is full of anomalies. Of course, this is not to be wondered at. Solons and law-makers have not yet learned enough about the automobile—unless they be automobilists themselves—to be able to put the new locomotion in its proper place.

The new law refers simply to the number plaque on the rear of the automobile; that it must be permanently riveted to the chassis or it must be painted on a fixed portion of the body work, and must be so effectually lighted at night so as to be as visible as in the day time. This of itself is probably impossible, for no matter how brilliantly it may be lighted a moving surface will not be as readily read, as to the inscription it bears, at night as it will be with the light of day. This is undeniable, evident fact.

And the red light which was formerly demanded? Nothing is said about that in the new law, so presumably it is no longer obligatory, and, of course, the authorities will not be able to summon anyone for the omission of it in the future. Not that this matters much; far from it, for the old lamps all had a red prism showing rearward. The new ones, those of Bleriot, Ducellier and others, who are reaping a harvest off the sale of this new automobile accessory in France, have no provision for this red light whatever, contenting themselves with giving as an effective illumination of the rear number plate as possible. Sometimes this is accomplished by reflection, and sometimes by a diffused light showing through ground glass, the latter a very neat method and legible enough when an automobile is standing still or moving slowly. At *vitesse*, even at the regulation six, eight or ten kilometers an hour, it will be another story.

The law says further that all automobiles on the road at night must carry this lighted rear plate; but another law still in force, and which has been in force for ten or a dozen years and has never been rescinded, distinctly states that at a less speed than 30 kilometers per hour—that is, an automobile not capable of making more than 30 kilometers an hour—the number plate may be dispensed with altogether. Therefore, logically, one is not obliged to illuminate a number plate which does not exist. What will actually happen in practice will be seen later. French law deems a suspect guilty until he is proven innocent, and by the same line of reasoning the authorities may be expected to work one an injury—if they feel like it—and beg his pardon afterward, if they express any regret at all. But what about the *dommage interet*, a bogey that lives in France to-day like the faith that all men are equal in the modern republic?

And what does all this prove: simply that automobile laws are the most foolish laws ever enacted as they exist to-day. The red flag law in Britain, whereby every "road locomotive" was obliged to be preceded by a man on foot carrying a red flag, was no more ridiculous than a lighting law which provides for the lighting of a plaque which does not exist.

Passengers to the number of 26 were carried 150 miles by Count Zeppelin recently, in his great dirigible balloon, and served to show, perhaps, better than any feat yet accomplished, the practicability of such a machine. Ten aeronauts and fifteen soldiers were in the party, in addition to the inventor, and were in the air for about four hours, leaving the quarters at Lake Constance and flying for a greater distance than has ever before been covered with such a weight.

What the Clubs are Doing These Days

BOSTON MOTOR CLUB NOW OFFICERED.

BOSTON, April 12.—The Boston Motor Club has completed its organization by the election of the following officers: President, Horace G. Kemp; vice-president, E. A. Gilmore; secretary, Alonzo D. Peck; treasurer, W. K. Farrington; directors, A. P. Teele, J. B. Sullivan, Jr., Arthur E. Adams, H. H. Love, A. B. Henley and R. R. Ross; membership committee, John L. Snow, W. A. Shafer, George Priest, V. A. Charles and K. A. Skinner.

President Kemp is a well-known local amateur autoist who has long taken much interest in club affairs. Vice-president Gilmore is a member of the Whitten-Gilmore company, the Thomas and Chalmers agents, and Secretary Peck is the veteran Boston bicycle dealer and race official. Treasurer Farrington is an amateur autoist. Of the directors, Messrs. Teele and Sullivan are Boston attorneys, Arthur E. Adams is manager of the Algonquin Motor Car Company, agent for the Oldsmobile; H. H. Love is a member of a financial concern, A. B. Henley is manager of the Franklin branch, and R. R. Ross is connected with the Peerless branch. John L. Snow, of the membership committee, is manager of the Peerless branch, W. A. Shafer is the head of the Crown Motor Car Company, agent for the Pullman and Glide, V. A. Charles is the manager of the Inter-State agency, and Kenneth A. Skinner is a former president of the dealers' association.

CROSBY TO BE HEAD OF BIG JERSEY CLUB.

NEWARK, N. J., April 12.—This year a nomination is equivalent to an election in the official list of the New Jersey Automobile and Motor Club. This means that W. Clive Crosby, at present president of the Associated Automobile Clubs of New Jersey, will also become the head of its largest club, as he has been placed in nomination by that organization's trustees. The other nominations are: Vice-president, Clarence Bissell; treasurer, G. H. Simonds; secretary, A. B. LeMassena. The present incumbent of the presidency, Paul E. Heller, declined a re-election, and Dr. J. R. English likewise refused a continuation in the treasurership.

In the board of trustees Mr. Heller, J. L. Adams, Jr., and H. D. Bowman have been named to succeed Joseph H. Wood, W. F. Kimber and A. G. Scherer. The holdover trustees are H. A. Bonnell, Dr. Frank Meeker, F. A. Croselmire and W. C. Shanley.

BRIDGEPORT CLUB HOLDS ANNUAL ELECTION.

BRIDGEPORT, CONN., April 12.—At the annual meeting of the Automobile Club of Bridgeport, attended by nearly 250 resident and non-resident members, Frank T. Staples was unanimously re-elected president of the organization. The other officers chosen were: Ralph M. Sperry, vice-president; F. W. Bolande, secretary; L. B. Powe, treasurer; board of governors, H. H. DeLoss, M. V. Doud, Dr. H. S. Miles, E. W. Fairchild, A. H. Canfield and B. H. Edwards. The nominating committee was composed of H. E. French, Frank Miller and David F. Read.

MARYLAND COURTESY FOR HARRISBURG RUN.

BALTIMORE, MD., April 12.—The Automobile Club of Maryland, through Secretary Darling, has requested Secretary of State N. Winslow Williams to have the State waive its legal right to require Maryland licenses for those who will participate in the endurance run of the Automobile Club of Harrisburg. Mr. Williams has submitted the club's request to Governor Crothers.

SYRACUSE CLUB CAMPAIGNING FOR MEMBERS.

SYRACUSE, N. Y., April 12.—There are now 230 members in the Automobile Club of Syracuse, and there are 250 owners who are not members, and a vigorous campaign has been instituted to secure at least 150 additional members. If this can be done, the activity of the local organization will be greatly increased, a permanent secretary engaged, headquarters established and monthly bulletins issued.

The club is at the present time actively engaged in considering the bills now before the State Legislature.

Through the courtesy of Congressman M. E. Driscoll the Syracuse club has received the latest topographical maps of the State. These will be mounted, and hung in the secretary's office.

PHOTOS WERE OF NORRISTOWN PATHFINDERS.

NORRISTOWN, PA., April 12.—The photographs used in the April 8 issue of THE AUTOMOBILE, in connection with the endurance run of the Motor Club of Harrisburg, were taken by the pathfinders of the second annual endurance run of the Norristown Automobile Club. This contest will be held May 18 and 19, between this place and Hagerstown, Md. The pathfinding party consisted of five cars, sent over the route at considerable expense to the club, and the photographs show the splendid roads which will be covered. The cars making the preliminary trip were a six-cylinder Oldsmobile, driven by T. W. Berger; White steamer, Matheson, Crawford and American Traveler.

DROUGHT AS MILWAUKEE CLUB'S COUNSEL.

MILWAUKEE, WIS., April 12.—The Milwaukee Automobile Club has accepted the resignation of James T. Drought, secretary and treasurer since its organization in 1903, as Mr. Drought could not be induced to remain. Arthur C. Brenckle, one of the leading cigar manufacturers of Milwaukee, has been unanimously elected secretary, and a treasurer will be chosen at the next meeting, it having been decided to separate these offices. Mr. Drought has consented to act as legal counsel, in which capacity he has been valuable. Mr. Brenckle is a charter member of the club, and has taken a deep interest in all of its affairs.

PHILADELPHIA CLUB INCREASES MEMBERSHIP.

PHILADELPHIA, April 12.—At the April meeting of the recently elected board of governors of the Automobile Club of Philadelphia last week no less than 63 applications for membership were favorably acted upon. Chairman R. O. Griffith, of the maps, routes and signs committee, reported that as soon as the full text of the new automobile laws of Pennsylvania, New Jersey and Maryland could be secured and put in type the new road book will be printed and issued to the members. Powell Evans was re-elected president of the board; Stedman Bent as vice-president, and S. Boyer Davis as secretary and treasurer.

OHIO ASSOCIATION ELECTS OFFICERS.

CINCINNATI, April 12.—Harry L. Vail was elected president of the Ohio Automobile Association at its annual meeting. C. J. Forbes, Jr., was re-elected secretary. The directors are: From Cleveland, F. T. Sholes, Harry L. Vail, W. H. Wherry, F. J. Baer, Chas. Weaver, C. H. Hoskins, C. J. Forbes, Jr., J. B. Ayers, W. M. Hager, W. F. Bonnell, B. P. Foster; from Elyria, A. L. Garford; from Youngstown, C. H. Yahrling; from Kenton, James H. Allen; from Akron, Andrew Auble. Secretary Forbes' report showed an increase in membership from 1,180 to 1,604.

A Leading Garage in the Heart of Portland, Me.

The photograph shows the headquarters of the Harmon Automobile Company, 26-30 Forest Avenue, Portland, Maine, which is admirably located as a stopping place for tourists on the route to the Maine summer resorts.

Milwaukee.—Since the fire which destroyed the Sanger garage, the members of the Common Council are proposing all sorts of radical regulations. This subject and the ultimate outcome are of great interest, because the garage is a necessity here, particularly in the fashionable districts. That condition was brought about by the desire of owners to keep their cars in a public rather than a private garage. One result of this has been to produce a lot of very high-class garages, most of which are architectural models. The outcome of the discussion will be awaited with much anxiety by the owners of these expensive places.

San Francisco.—The latest step in the automobile invasion of Van Ness avenue is the announcement of the erection of the Stearns Building, on the corner of Fulton street. This will be a very large building and one that will add materially to the neighborhood. Construction has been started, and possession is expected within sixty days. The Reliance Automobile Company, the local Stearns agents, will move the salesrooms and offices, but the shops and garage will remain at the present location, this segregation being one of the features of the new building.

Chicago.—The new garage proposed by the Chicago Motor Cab Company, to be erected near Huron and St. Clair streets, has been strongly opposed by residents of the fashionable district. Protests have been filed by Joseph Leiter for the Potter Palmer estate, John L. Whitman, John T. Mountain, H. F. Talbot and R. F. Keith. Certain legal points are being considered by city counsel.

Joliet, Ill.—One of the best equipped garages in the State has been opened by George B. Peterson, on Clinton street. It includes a show room, office space, rest and smoking rooms, retiring rooms for ladies, and a machine shop fitted with electrical power and operated by skilled mechanics. The garage has large washstands and space for cleaning and storage.

Des Moines, Ia.—Contingent upon street improvements, the Bernhard-Turner Automobile Company, will erect a large building for garage purposes on Seventh street, just north of Grand avenue. It will be two stories in height, with a front of glass, and completely equipped in every way; garage, washstands, etc., and the property has been secured.

New York City.—John D. Rockefeller has had plans filed for making over the annex to the Metropolitan Riding Academy, at 125 West 55th street, into a garage. The wooden fittings will be torn out, and the building reconstructed in fireproof style, with steel ceilings, terra cotta walls and partitions and cement flooring. A turntable will be installed.

Garage Washstand on the Roof.—To utilize otherwise wasted space, a garage in Sydney, Australia, has arranged its building so that its cars are taken to the roof for washing and general cleaning, and then taken down into the building for storage. The roof is made of reinforced Malthoid and so can be used for this without any danger of leaks or of it wearing out.

Huntington, W. Va.—The Hanley & Kincaid Automobile Company will occupy the new Miller garage, on Court street, between Ninth and Tenth streets, which is one of the largest in West Virginia. The garage section of the building has been completed and the company will take possession at once.

Port Jefferson, N. Y.—The Fred Griswold Garage Motor Company has bought the lumber yard property of John T. Mather, and will erect a garage and dredge the mill creek so that motor boats can get to the shop. Benjamin West, of Bayport, is to be an active member of the company.

Pittsburg, Pa.—B. F. Benson is erecting a garage on North Craig street, near Luna Park, for Studebaker cars. The Hamilton Automobile Company, agent for the KisselKar and the Middleby, has broken ground for a new home at Hamilton and Dallas Avenues.

Louisville, Ky.—The Olds Motor Works has purchased, for $25,000, property on Fourth avenue, near York street, on which to build the largest garage in the South. It will be of brick construction, and used both as a selling headquarters and garage.

Cumberland, Md.—The Queen City Garage Company, recently incorporated, will continue the garage and repair business which has been established for some time. J. H. Johnson, B. H. Biays and L. Reed are interested.

Charlotte, N. C.—Osmond L. Barringer has made plans for building a one-story garage, 50 by 180 feet, with a showroom and office in the front, and in the rear an electrically driven machine shop; cost, about $10,000.

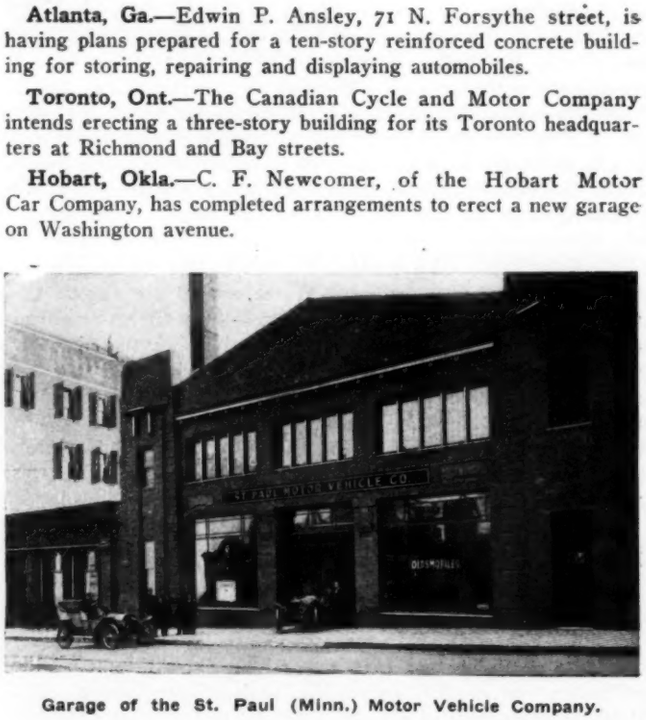
Indianapolis, Ind.—Work was started recently on the two-story building for the Gibson Automobile Company, at 235 N. Pennsylvania street. This building, 37 by 125 feet in size, will be used as a showroom.

Springfield, Mass.—Work has been commenced upon a new garage for the Hampden Automobile Company at 60 Taylor street. It is 50 feet wide and 115 long and will be completed in sixty days.

Atlanta, Ga.—Edwin P. Ansley, 71 N. Forsythe street, is having plans prepared for a ten-story reinforced concrete building for storing, repairing and displaying automobiles.

Toronto, Ont.—The Canadian Cycle and Motor Company intends erecting a three-story building for its Toronto headquarters at Richmond and Bay streets.

Hobart, Okla.—C. F. Newcomer, of the Hobart Motor Car Company, has completed arrangements to erect a new garage on Washington avenue.



Garage of the St. Paul (Minn.) Motor Vehicle Company.

Three Famous Fishermen and One Able-Bodied Seaman.

Showing the result of a day's sport at Knight's Key, Florida, participated in by three prominent New Yorkers: General Manager Alfred Reeves, of the American Motor Car Manufacturers' Association; John C. Wetmore, of the "Evening Mail," and Nathan Lazarnick, the well-known photographer. The able seaman stands complacently at the extreme left, apparently well satisfied with a good day's work.

Lozier Company's Team for Races.—Harry Michener and Ralph Mulford, who have driven the Lozier cars in the principal events in which these have competed in the last three years, will continue to drive in the events in which the Lozier cars are featured during the coming season. Harry Cobe, who twice assisted in breaking the world's 24-hour record with a six-cylinder Lozier last year, will also be a member of the Lozier team. Michener is now on the Pacific coast, and will take part in some of the western events during the next six weeks; after which he will return east, either for the 24-hour race at Philadelphia or the Cobe stock car race at Chicago. Mulford will be seen in races for the last time this year, and will take no part in racing events after the Founders' Week race in Fairmont Part next October. Harry Cobe will probably take Milford's place as a regular driver on the Lozier cars after this season.

Many Visitors See Pierce Factory.—Approximately 1,500 people have been shown through the new factory of the Pierce-Arrow Motor Car Co., Buffalo, in the past twelve months, according to officials who have been able to judge the numbers fairly accurately, and hereafter an actual count will be made by those in charge of the reception room. The plant has become one of the show places of the city, and for that reason the visitors have not been confined wholly to the class that buys cars. Among the visitors have been between 60 and 75 men from other automobile factories, and several from large European concerns, all looking for ideas on how to better their own establishments. The Pierce is one of the largest and most modern in its construction among automobile factories, and a cordial welcome is always given to visitors, no matter what their purpose may be.

Tropical Trade in Waverley Electrics.—The island neighbors and dependencies of the United States are proving excellent customers for American-made automobiles. A short time ago a Waverley electric was sold to a sugar planter of San Domingo. Last week an order was received from Honolulu for a model 67 Waverley victoria phaeton. This is an especially popular model for southern climates and the appearance of a new electric carriage of this type in tropical Hawaii can hardly fail to attract attention among other possible purchasers. A letter recently received by the Waverley Company from Manila, P. I., refers to the active competition in that faraway city between automobiles of French, Spanish and American manufacture, and expresses an urgent desire to see a greater number of American cars represented in that city.

Chicago Society Woman Drives Baker Electrics.—Mrs. Guy R. Pierce, a society woman of Chicago, is an enthusiast on electric automobiling, and recently said: "I do not see why ladies should doubt that an electric automobile can be operated easily. Any woman can drive an electric at her own pleasure, without danger of soiling gowns, gloves, or temper." Mrs. Pierce has purchased one of the new Baker electric coupes, and has been asked by many of her friends to show them how to run the car. She also owns one of the Baker electric runabouts, a car which has the general outlines of a gasoline car, but which is really an electric with a mileage radius of 100 miles at an approximately high speed.

A Million Dollar Challenge.—With evident courage of its convictions, the Diamond Rubber Company is taking the position that the automobile owner should have first-hand knowledge of tires. In a rather striking advertisement printed this week, a "Million Dollar Challenge" is issued to car owners to acquire such knowledge, and users of Diamond tires, as well, are urged to check up their respective experiences. The Diamond Company is very much in earnest, and the advertisement referred to is well calculated to attract a great deal more than passing notice.

Winton Output of Large Cars Sold.—Notice has been issued by sales manager Churchill that the entire output of 60-horsepower Winton sixes has been sold. Mr. Churchill says, "We do not count a car sold until we have the money for it. If we were to follow the general practice of regarding agents' blanket orders as sales, our entire output of both 48 and 60-horsepower cars would have been gone long ago. Sales have been particularly active all winter, and at the present rate we shall have no more 48-horsepower cars to sell within three weeks."

Bosch Offers Prizes to Racers.—The Bosch Magneto Company has announced that it will give cash prizes to the drivers of the first three cars in the Coupe des Voiturettes, the light car race, in France this year. The driver of the first car will get $600, that of the second $200, and the third $100. The only condition is that each car shall be equipped with the Bosch magneto. As to other prize awards on occasions of this season's events of major importance, announcement will be made later.

Record Sale of Glide Cars in Peoria.—The old adage that "a prophet is not honored in his own country" has not held in the county of Peoria, Ill., according to G. G. Luthy, secretary of the Bartholomew Company, manufacturer of the Glide automobiles. This concern has sold 18 of its 1909 cars to buyers in the city of Peoria, in which the factory is located, and six to those in the same county, outside of the city, making 24 sales in Peoria county.

Rapid in New Factory.—The Rapid Motor Vehicle Company, of Pontiac, Mich., has moved into its new factory, which now gives it four acres of floor space. H. G. Hamilton, the general manager, reports that 80 per cent. more business is on the books of the concern than in the busiest season of last year.

Baltimore to San Francisco Tour.—Harry C. Weiller and family, of Baltimore, Md., are arranging to make a trip across the continent to San Francisco, in their 50-horsepower Welch car. Many side trips will be taken, and it is expected that about 10,000 miles will be covered.

IN AND ABOUT THE AGENCIES.

Remy, Detroit.—The Remy Electric Company, of Anderson, Ind., manufacturer of high tension magnetos for automobile, marine and stationary gasoline engines, has opened a branch selling office at 471 Woodward avenue, Detroit, Mich. The new distributing center will be under the management of C. E. Brelsford, formerly manager of the Detroit branch of the Witherbee Igniter Company and the Stewart & Clark Mfg. Company. Mr. Brelsford will be assisted by A. J. Roth and Dell Stines, both of whom are experts on automobiles and accessories.

Stearns, Philadelphia. — G. Hilton Gantert, formerly of The Motor Shop, has been awarded the Philadelphia agency for the Stearns car, and has opened up handsomely appointed salesrooms at 510-512 North Broad street. As the Motor Shop handled the Stearns in the Quaker City up to within a few months ago, Mr. Gantert is peculiarly well qualified to advance the interests of that car in Philadelphia.

Kissel Motor Car Company of New York.—In changing its location, the name of the metropolitan distributor of the KisselKar also was changed from the Apthorp Motor Car Company to Kissel Motor Car Company of New

York. Its new headquarters are at 1875-77 Broadway, and Fred S. Dickinson, the manager, has made arrangements for additional lines of cars from the Wisconsin factory.

E-M-F, Tampa, Fla.—The Tampa Harness & Wagon Company are the agents for the E-M-F in this city. The company's territory embraces several counties in southern Florida.

PERSONAL TRADE MENTION.

H. S. Firestone, president of the Firestone Tire & Rubber Company, has returned to his home in Akron, O., delighted with Cuba as a perfect spot for automobile touring. He says that the roads are being continually improved by the government with coral stone, which is proving to be the finest material imaginable. It works down into an asphalt-like surface that requires little repair and remains perfectly smooth. Mr. and Mrs. Firestone toured in company with James Couzens, of the Ford Motor Company.

Frank B. Hower, chairman of the A. A. A. Contest Board, in a friendly chat recently, said: "I think I will not care to run another Glidden tour after this year. I am glad to have this one to manage, in order to apply the experience I gained in the last two contests. The manufacturers this year will get the best run for their money they ever have had. I am making certain of this, but in another year I hope there will be some one else to bear the burden of the work and worry."

F. C. Gilbert has resigned as general sales manager of the Toledo Motor Company, the successors to the Pope Motor Car Company, of Toledo. Mr. Gilbert has been with this company, and its predecessors for fourteen years, and during the period of the receivership marketed for the receivers over a million dollars' worth of goods, holding the sales record for the allied companies He expects to take a short vacation and will then take up active work again.

J. L. Davidson, superintendent of the former Rainier automobile factory at Saginaw, Mich., has severed his connections with that plant, now the Marquette, and taken a position as superintendent of the American Motor Company of Indianapolis. The seven foremen who were under him in official capacity, as an expression of their goodwill, presented him with a valuable ring. Mr. Davidson is succeeded by W. R. Willett, at the Marquette works.

Milton Lusk, who has entertained so many automobilists on Glidden tours and at shows by his music on Gabriel horns, will shortly join the sales forces of the Pittsburg branch of the Olds Motor Works. With C. H. Foster, of the Gabriel Horn Company, it is probable that Mr. Lusk will be at the keys of a horn in the A. A. A. tour this summer.

E. Percy Noel, advertising the Moon Motor Car Company, is the author of the words of a new popular song, "Tell Me Your Love in Wireless," brought out by the Noebur Publishing Company, St. Louis. W. P. Burnet, a well-known composer, wrote the music.

Russell Dale formerly sales manager of the Celfor Tool Company, has been appointed the Chicago representative of the Carpenter Steel Company, of Reading, Pa. Mr. Dale will have his headquarters in the Commercial National Bank building.

T. P. Myers, sales manager for the Rapid Motor Vehicle Company, Pontiac, Mich., has just returned from a month's trip through the Western States, where he recently appointed several new agents for his company.

L. H. Kittredge, president of the Peerless Motor Car Company, has been made a member of the executive committee of the Cleveland Industrial Exposition, which will be held in Cleveland from June 7 to 19.

J. J. Evans, who marketed the first American Mercedes automobile, has taken charge of the output of Frontenac cars, made by the Abendroth & Root Company, Newburgh, N. Y.

F. A. Stock, for some time associated with the Franklin line in Cleveland, has been appointed manager of the Jewell Motor Car Company, of that city.

Thomas Henderson, vice-president of the Winton Company, leaves Cleveland this week for a Pacific coast tour.

TAXICABS AND TRANSIT.

Greenfield, Mass.—A company has been organized in Greenfield to operate a line of automobiles to Turners Falls and Northfield. One car to seat twelve has been purchased and will be run to the former place on an hourly schedule, each trip consuming about 15 minutes, commencing May 1. The car for the Northfield line will seat 16 to 20, and will make three round trips daily, one in the morning and two in the afternoon, beginning with the summer season.

Marquette, Mich.—The Marquette County Traction Company has been organized to run an automobile service between Marquette, Ishpeming, and Negaunee. Four large passenger cars are to be put into the service, and will make regular trips between the three cities every day.

Philadelphia.—The Whitemarsh Valley Country Club has purchased a 40-horsepower White steamer opera bus, which it will use in running between the clubhouse and railroad and trolley stations at Chestnut Hill.

RECENT BUSINESS CHANGES.

Gilbert Manufacturing Company Separates Lines.—The Gilbert Manufacturing Company, New Haven, Conn., makers of the Gilbert tire cases and other automobile accessories, has separated its business in this trade from that of making corsets. In doing this a new concern has been incorporated under the old name, and the Gilbert Corset Company was formed to carry on the original line. F. E. Bowers has bought a controlling interest in the new firm and will continue in the active management as in the past.

C. S. Houghton, Baltimore.—New salesrooms and a repair shop have been opened by C. S. Houghton, the local agent for the Overland cars, at 6 East Read street. Mr. Houghton formerly had his headquarters in the Calvert building.

TO DOUBLE CHALMERS PLANT.

Detroit, Mich., April 12.—It was announced to-day that the Chalmers-Detroit Motor Company has decided to double the capacity of its plant. A new building, an exact duplicate of the present main building, will be erected in time for occupancy September 1. This will be 60 feet wide, 400 feet long, and three stories high. The new building, like the present main building, will be of concrete construction throughout.

WOODWORTHS AT NIAGARA.

Niagara Falls, N. Y., April 12.—The Leather Tire Goods Company, Newton Upper Falls, Mass., has just completed a new two-story factory at Niagara Falls, which it will occupy after May 1. The entire manufacturing plant and office will be moved to Niagara Falls the latter part of April, and all correspondence should be addressed here after May 1.

The new factory is located on Whirlpool avenue, near the Whirlpool Rapids. It has over 10,000 feet of floor space, and with the improved machinery which is being installed, will have a capacity of over 300 treads per day. This new location will make it more convenient than heretofore to obtain Woodworth treads, for Niagara Falls is one tf the best shipping points in the country.

NEW AGENCIES ESTABLISHED.

Brush, Dutch Neck, N. J.—Hiram Cook & Sons. For the eastern half of Mercer County, including Princeton, Lawrenceville, Hightstown and Pennington.

White Steamer and Jackson, Tampa, Fla.—Florida Gas Engine and Supply Company.

White, Pittsfield, Mass.—Tracy & Robison, 184 North street. For the Berkshires.

Rapid, Pittsburg, Pa.—Keystone Automobile Company.

Chase, Boston.—N. S. H. Sanders.

RECENT INCORPORATIONS.

Duluth Motor Vehicle Company, Duluth, Minn.—Capital, $50,000. To manufacture, buy, sell, import and export automobiles, motors, engines, machines, etc.; sell gasoline, do a general garage business, etc. Incorporators: A. G. Fitzgerald, Evelyn S. Fitzgerald, C. W. Fitzgerald.

Crowley Iron and Machinery Company, Ltd., New Orleans.—Capital, $15,000. To install an automobile garage and do a general repair and machine shop business. President, S. D. Wilder; vice-president, J. P. Burgin; secretary-treasurer, C. E. Warren.

The Anderson Motor Car Company, Anderson, Ind.—Capital, $10,000. To manufacture motor vehicles. Incorporators: T. Chandler Welbes, Spencer M. Hickman, Edwin G. Worden, U. Grant Hodson, E. Fred Dice.

Nadall-Van Sicklen Manufacturing Company, Chicago.—Capital, $50,000. To manufacture automobile accessories. Incorporators: G. L. Wilkinson, W. A. Scott, C. A. Richmond.

Berger Taxicab Company, Brooklyn.—Capital, $25,000. To manufacture and rent automobiles, wagon trucks, carriages, etc. Incorporators: H. A. Berger, W. Wing, P. Wilds.

Green Taxicab Company, Brooklyn.—Capital, $25,000. To purchase, deal in and rent automobiles and motor vehicles. Incorporators: D. T. O'Brien, F. G. Strobel, H. Jacobs.

L. W. Holt Company, Buffalo.—Capital, $10,000. To sell automobiles, power boats and engines. Incorporators: R. A. Kellogg, Elizabeth A. Nauth, Frances A. Moses.

American Body Company, Buffalo.—Capital, $10,000. To manufacture automobiles and other vehicles. Incorporators: E. A. Selkirk, E. J. Freitas, J. W. Kelly.

Motor Company of Dover, Del.—Capital, $100,000. To manufacture automobile and other motors. Incorporators: J. H. Hughes, J. L. Wolcott, Franklin Temple.

Sloane Motor Company, Chicago.—Capital, $35,000. To do a general manufacturing business. Incorporators: A. W. Baer, William M. Sloane, D. M. Carter.

Beacon Motor Car Company, Boston.—Capital, $10,000. To do a general automobile business. Incorporators: F. H. Young, L. B. Pinkney.

Oklahoma Taxicab Company, Oklahoma City, Okla.—Capital, $10,000. Incorporators: Joseph Huckins, Jr., C. R. Riggs, H. R. Connor.

SOME RECENT TRADE PUBLICATIONS

The Rambler Magazine: Thomas B. Jeffery & Co.—This magazine, which does not accept a single line of advertising material, and is mailed free to a multitude of people each month, is the unique publication known as the "Rambler Magazine," published by Thomas B. Jeffery & Company, Kenosha, Wis., makers of the Rambler car, in the interest of 14,000 Rambler owners. The latest issue, now being mailed, is practically of standard magazine size, and in it appears articles descriptive of touring, with pictures especially posed by some of the best photographic artists in the country. The Rambler people offer big prizes to amateur photographers for specimens of their work, and these are reproduced in the issues. This publication was started several years ago for circulation among Rambler car owners. Then owners asked to have it sent to their friends, and these have increased to such an extent that the free circulation has now soared to high figures. Mr. Jeffery, maker of the Rambler, believes that the furnishing of specific information to owners and prospective buyers is of great benefit to the industry in general. Free copies of the latest issue will be sent to any one making the request to the publishers.

The White Company, Cleveland.—The White Company, in its latest publication, the catalogue of the 1909 product, has followed much the same successful lines as heretofore, with perhaps an improvement, for its new book is a pleasure to read, and highly instructive as well. Not only are the various models described, but the parts of the White construction are thoroughly analyzed, and to those users of gasoline cars who do not understand the operation of the successful steamers, this catalogue would be especially valuable. The book is a handsome one, from cover to cover; well bound, well printed, and with cuts which could not be improved. Phases of White desirability are discussed, the newly adopted Joy valve action explained, as well as that of the steam generator system, which is so often misunderstood or misquoted. Excellent photos of the complete cars, chassis, and parts, are given to illustrate the reading matter. Two chassis sizes are built by the White Company this season, one of 20, and the other of 40 horsepower, and the specifications are given in full.

Banker Wind Shield Company, Pittsburg, Pa.—Two types of wind shields are being made by the Banker Wind Shield Company, as shown by the firm's recent catalogue, one a single folding, and the other a double folding type. In both, heavy plate glass is used, and they both have features that make them desirable, such as rubber buffers in the ball and socket joints, and full length hinges, to prevent rattling. The double folding shield is, of course, the one featured, for it can be so folded over the hood of an automobile as to be out of the way, even when the hood is opened. There is no metal strip across the center of the glass to obscure vision, and shelves of metal are used to support the glass. The frame is made of one piece solid stock, set in chanelled rubber, and the clamps, telescoping tubes, etc., are made of highly polished brass. The wood is of walnut and mahogany, with piano finish. Accurate measurements for all makes of cars are kept so that mail orders can easily be attended to.

Buckeye Manufacturing Company, Anderson, Ind.—The new catalogue of the Buckeye friction drive cars deals mainly with the friction feature and the engine used. The former embraces two elements, a friction disc and the driving wheel, mounted upon an extension of the crankshaft. The disc is mounted, slidably, upon a jack shaft from which the drive is by enclosed silent chain to the rear axle. Actual service has proved all of the Lambert claims, not only on touring cars of little weight, but upon the heaviest of commercial trucks. Four models are listed, varying in price, carrying capacity, size and type of motor. The extremes are Model A-1, which will carry 2-3 passengers, lists at $800, and has a 20-horsepower, two-cylinder opposed engine; and Model B-2, with roomy seven-passenger body, four-cylinder vertical motor of 40 horsepower, and priced at $2,000. Between the two are a number of others all medium priced, but varied in capacity and equipment to suit the various needs.

Northwestern Storage Battery Company, Milwaukee, Wis.—Storage ignition and lighting batteries, electric cabin and enclosed car lights, electric side and rear lights for automobiles and motor boats, battery charging outfits, etc., manufactured by the Northwestern Storage Battery Company, are ably described and illustrated in a catalogue recently published by this concern. Several sizes of ignition batteries are made: 6-volt, 60-ampere; 4-volt, 60-ampere, and 6-volt, 40-ampere. Then there is a motor boat battery of 6 volts, 120 amperes, and a lighting battery which can be made in various sizes, for house, farm or boat lighting, to be used in connection or without, a gasoline engine and dynamo charging outfit. A great variety of lamps is offered, the searchlights being furnished with tungsten globes, and the side and dome lights with the regular carbon lights. Special lights for speedometers, etc., are also made, and all types shown and explained in detail in the catalogue.

Breeze Motor Buggies, Carthage, O.—The Jewell Carriage Company has issued its catalogue describing the several styles of motor buggies built by it, sold under the trade name of Breeze. There are two chassis sizes illustrated, one of 13-14 horsepower, and the other of 17-18; both with double oposed offset air-cooled engines, single chain drive to a counter-shaft, and double side chain drive to the rear wheels. A two forward speed planetary transmission is used. There are three general styles of bodies mentioned, one with a single seat for two passengers; one a surrey with a capacity of four or five; and a model with a seat for two in front and with a light spring wagon body so that merchandise can be carried at the rear. The wheels are 37 inches in diameter, and fitted with solid rubber tires. The steering is by wheel, and the engine control levers are on the steering post, underneath the wheel.

Kearns Motor Buggy Company, Beavertown, Pa.—Gearless, clutchless, valveless, are the words used to describe the Kearns, which is a new motor buggy or high-wheeler with a two-cylinder, two-cycle, air-cooled motor and a friction transmission. While these words at first sight seem extravagant, upon closer acquaintance the car is seen to bear out the claims. The two-cycle motor used is the Speedwell, which is well known, and of course has no valves. With a friction transmission no clutch is used, this being one of the advantages of this form of power conveyance. With this form, also, gears are eliminated. As the catalogue aptly puts it, "the Kearns cars are noted for the mechanical features they lack; they have no speed change gearing, no differential, radiator, water tank, pump or water jackets, no clutch, valves, gears, cams or springs, and no punctures."

The K-W Ingition Company, Cleveland.—In a little booklet which combines the features of a catalogue and an instruction book, the K-W Ignition Company, of Cleveland, is setting forth the particulars of its 1909 products of magnetos, coils and spark plugs. Five different styles of magnetos are made; one for belt spark only with a friction drive; one for belt drive, especially for machines like the Ford runabouts; one for motor boats, and two which can be used with gears, belts or sprocket and chain drives and either for jump spark or make and break, the same model being used with slightly different arrangement for the different types of ignition. These magnetos can be used for electric lights at the same time that they furnish the ignition current. K-W spark plugs and coils are described in detail, giving the advantages and construction, with advice for the care of them.

Alden Sampson Mfg. Co., Pittsfield, Mass., is distributing Catalogue C, a book descriptive of commercial motor vehicles built by this concern. These include the twenty-ton road train and principally the new four-ton truck chassis. The latter has been so constructed as to be equally suitable for use as an omnibus. The good features noticed on casually glancing through the book are the spring-suspended engine, three-point suspension for the transmission, automatic spark advance, the driver manipulating the throttle only, and the enclosed chain. The chain case is dust-proof and oil tight, being made of sheet metal, is liberaly provided with inspection and adjustment covers, while at the same time acting as a radius rod. This will undoubtedly be a large factor in the life and efficiency of the chains, the most important element in the driving mechanism.

The Royal Tourist Car Company, Cleveland.—The announcement of the Royal Tourist for the 1909 season was looked forward to with a great deal of expectancy before the shows, and the catalogue, which appeared simultaneously with the touring cars, is in keeping with them. Bound in light blue with an attractive cover drawing, and having in its center two of the prettiest photos of cars yet seen in the season's booklets, both being views of the new touring cars, make it especially attractive. A front view is also shown, as well as those of the engine, transmission, and other parts. The construction of the car is explained in detail, and the general matter in the catalogue conveys a splendid impression of the newest product of the Royal Company.

American Napier Company, Jamaica Plain, Mass.—The American Napier Company, in its catalogue of the 1909 product, announces that three types will be manufactured: The 60-horsepower, six-cylinder car; the 40-horsepower, four-cylinder car, and the 20-horsepower, four-cylinder "Nike" type runabout. The full description of these models is given in the new publication, calling attention to the construction of the frame, brakes, steering joints, clutch, engine, gears, and other points worthy of note. Ease of control and ignition is emphasized, as well as the lubrication features. In tabulated form, the specifications are so given as to allow of an easy comparison between the various models, or for reference.

Buggycar Company, Cincinnati.—In presenting the 1909 catalogue of "Buggycars," this company reveals an unusual machine. This is a high-wheeler with a horizontal opposed, air-cooled motor of 12-horsepower located in the center of the car. From the flywheel, the drive is by friction to a side shaft, the latter driving the rear axle through bevel gears. Side leaf springs are used, the frame is of angle iron, 1 1-8 tires, are solid, and the same on both, 42-inch front and 44-inch rear wheels. Tiller steer is employed and a wide range of buggy bodies may be had. As an option, cable drive may be had, if desired, in place of the friction shaft drive.

Motor Car Equipment Company, New York City.—Everything for the autoist but the auto, might well be the title of this 1909 catalogue. The firm is accessory dealers, and the catalogue is a description in detail of the accessories handled, all of which are of a very high grade and well known to the trade. Contrary to the usual catalogue of supply houses this one is printed on very excellent paper and the cover is of an attractive design. This has a border made up of scenes from the Vanderbilt and other races, within which is another border. Inside of this in turn is grouped a lot of accessories, about every imaginable thing in this line being included.

Trojan Motor Company, Louisville, Ky.—This concern is issuing a binder with inserted leaves to the number of 7, 8 by 10 in size, descriptive of the Trojan automobile motors. These are of the air-cooled two-cycle two-port type, and range from one to four cylinders. The same size cylinders are used on each, and are 4½ inches in diameter, 8, 16, 24, 32 for the respective one, two three and four-cylinders, in which it agrees exactly with the A. L. A. M. rating, although the latter is intended for four-cycle motors. Two views of the single-cylinder are shown.

Dow Tire Company, New York City.—This is a booklet, 5 by 9 in size, descriptive of the Dow non-deflation inner tubes. These are of great service in the elimination of punctures and the annoyances attendant upon cuts or punctures. Coupled with this, the fact that these tubes do not lose anything in resiliency easily accounts for the present popularity of this accessory. The booklet describes their manufacture, includes many letters of recommendation, and finally a list of prices and sizes in both inches and millimeters.

Ohio Seamless Tube Company, Shelby, O.—This is a history of the growth of the seamless steel tube industry in this country, dating from 1890. The development of the buildings, which is the mark of the progress of the company, is pictured in a series of photos. These show in a graphical way the story which the text tells. The 4 by 8 booklet closes with a description of the process of making steel tubing.

Cortland Forging Company, Cortland, N. Y.—Catalogue D is a real book, 6x9 in size, bound in cloth and illustrates the product of this company, which includes bow sockets, arm rails, top and body irons, as well as shifting rails and top parts or components of carriage or automobile tops. A very complete index is a pleasing departure from the usual run of catalogues.

Hornecker Motor Mfg. Co., Genaseo, Ill.—No. 5 catalogue of the Torpedo Motorcycles, showing the various one and two-cylinder models made by this firm. A considerable portion of the book of 40 pages is devoted to testimonial letters from Torpedo owners all over the country, particularly California, where many hill climbs and races have been won on this make.

Garvin Machine Company, New York City.—Edition D of the illustrated catalogue of machine tools is a standard sized, 6 by 9, well printed book of 96 pages. The text, descriptive of the Garvin one, two and three-spindle profilers, vertical spindle millers, duplex millers, and other tools, is printed in three languages. These are English, French and German.

INFORMATION FOR AUTO USERS

A Compact Pressure Register.—A clever device which is destined to add to the peace of mind of the automobilist is the new Pressuretell valve, shown in the illustration, which not only retains the air pressure within the tire, but at the same time will indicate at a glance the pressure existing. The recent agitation for higher air pressure has developed this article as a pressure indicating medium, and as it was a self-evident necessity, the natural question was—why not incorporate it as a part of the valve itself?

PRESSURETELL VALVE.

The device is arranged inside of the regular and well-known Schrader valve, all of the parts being standard, so that it is interchangeable with any valve now in use. On screwing off the protecting cap, the interior portion of the valve rises, displaying a graduated stem which, read at the top line of the stationary part, gives the pressure. The graduations read from 40 pounds at the top down to 120 pounds, at 5-pound intervals, as the pressure within being greater, the graduated stem will be pushed out farther, so the graduations must read in reverse order. The pumping of the tires or deflation of the same is in no way interfered with. The Pressuretell valve is marketed by Indicator Sales Company, 1773 Broadway, New York City.

Don't Risk Losing Your Auto by Fire.—It is often said that an ounce of prevention is worth a pound of cure. This must be true of fires if of anything, so any means for preventing or extinguishing automobile fires is worthy of attention. Among the successful fire extinguishers is the Goodson, which has the additional good features of being small, compact, efficient, and above all, reasonable in price. This is put up by the makers, Goodson Electric & Mfg. Co., Providence, R. I., in long tubes of small diameter, which will go into any tool box. The composition of the contents is such that it cannot explode, cannot get out of order, will not freeze, requires no attention, and is so simple that any child can operate it. With all these good features, the retailers should sell them faster than the makers can turn them out. If they cannot, it is a sure sign that the people do not know a good thing when they see it. The quality of taking little room should alone be enough to recommend it. But added to that, non-freezing, non-explosive nature and lack of care speak volumes for it.

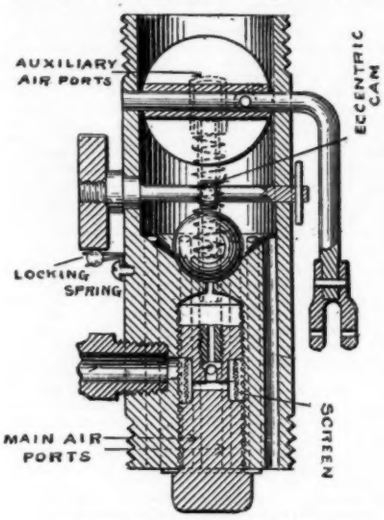
GOODSON FIRE TUBE.

Wridgway Automatic Headlight Shade.—A crying necessity, due to the glare of the average headlight, which blinds approaching drivers and renders roadwork a hazard. The "Wridgway" is made by the Wridgway No Glare Shade Company, 1999 Broadway, New York City. This shade is said to do nothing to kill the glare of the lamp, and in no way is the efficiency of the same reduced. The rays of the light are not scattered, and the projected beam of a headlight is just as effective, but its penchant of damage is aborted.

W-D Spring Cushion Tire.—This tire is designed to eliminate possibility of punctures and blowouts and insure safety at all times. The basis of the puncture and accident proof claim is the laminated Swedish steel springs which form the interior of the construction. These have the form of a modified letter B laid on the flat side, thus bringing the recess uppermost. Into this a heavy beading on the interior of the rubber shoe or casing, fits loosely, the arrangement of the curves being such that it is impossible for the steel springs to cut into the rubber. The use of springs does away with air and the necessity for providing it in the first place and maintaining it thereafter. This means throwing away the pump and with it all tire worry. The springs are very resilient under load, in fact, a depression of three-quarters of an inch is claimed, which is actually more than the ordinary hard-pumped pneumatic. This should make for easy riding qualities, which have been prominent by their absence in other tires with steel as the base. This tire is said to be no longer an experiment, having been tried on rough and smooth roads for between 7,000 and 8,000 miles, and is pronounced by tire and automobile experts to be the acme of perfection in tire manufacture. It is sold under an absolute guarantee, making it the most economical and absolutely safe tire on the market. The W-D Spring Cushion Tire Company is located at 107 West Twenty-seventh street, New York City.

CROSS SECTION W-D TIRE.

The Ball Does the Work.—In the Shain Ball Spray Carbureter, as the name indicates, there is no spray nozzle, this work being done by a ball. It floats on the entering stream of gasoline and by its weight regulates the flow thereof. This arrangement makes for simplicity in operation, and by eliminating many small, delicate parts also reduces the opportunities for derangement. In the sectional view, the gasoline enters at the pipe on the left, passes through the screen, which is removable, up under the ball, and thence enters according to the suction of the engine. This suction not only raises the ball but also sets it to whirling. The result is to break the stream of entering gas into a thin film, which is thrown against the walls, where the air readily picks it up. From this mixing chamber, the mixture passes up into the throttle chamber, where at very high speeds additional air is admitted. This is allowed to enter by the movement of the throttle, which at or near the extremity of its traverse, uncovers the auxiliary air ports. The weight and size of the ball is predetermined by the manufacturers, and is unchangeable. Its lift, however, is regulable by means of an eccentric cam. The size of all of the air ports, both main and auxiliary, is also unchangeable, as is the point at which the latter comes into action. So, this device possesses many attractions for the new driver, and the old hand, who desires simplicity. It is made and marketed by Charles D. Shain, Murray street, New York City.



SHAIN BALL SPRAY CARBURETER.

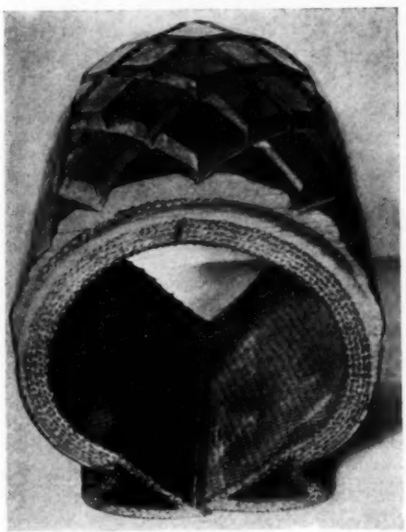
Greater Convenience in Horn Operation.—A new contrivance of great simplicity and very convenient for use when driving, particularly in crowded city streets, is a horn which may be operated without removing the hands from the steering wheel. In driving along crowded thoroughfares, a person's hands are

HOLTZER-CABOT ELECTRIC HORN.

rather well occupied by the needs of gear shifting and steering, without anything additional such as a signaling device. A late improvement in this direction is the use of electrically operated horns, which may be operated from any place desired by simply locating the operating button at that point.

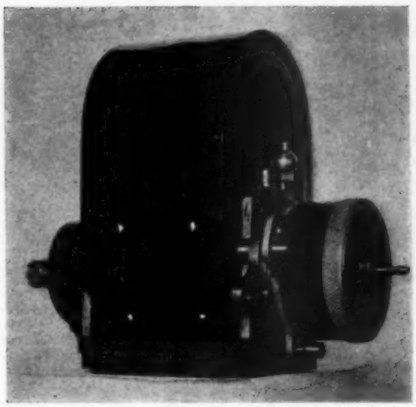
A prominent company manufacturing a line of electric horns, the Holtzer-Cabot Company, of Brookline, Mass., has brought out an improved horn which has many new and valuable features which will commend its use. This horn may be operated by either a 6-volt storage battery or by dry cells if preferred. It is so made that the adjustment will not be affected by the jar of the machine running over the road. Moreover, it is also dust and moisture proof. As ordinarily attached to an automobile, the operating push button is placed upon the steering wheel, usually on one of the spokes. It may, in this position, be operated without moving the hands.

New Ajax Non-Skid Tire.—In bringing out its new non-skid tire, the Ajax-Grieb Rubber Company has adopted a distinctive method of construction. Instead of having a moulded tread, the Ajax tread is wrapped on the shoe by the same process by which the ordinary smooth Ajax tire is made. When worn



SECTION AJAX NON-SKID TIRE.

after going at least the 5,000 miles for which they are guaranteed, these non-skid tires can be retreaded without injury to the inner fabric so that they can be run two or three thousand miles more. The new Ajax also has a character of its own in its appearance, its raised parts being quadrilaterals, 3-16 of an inch in depth, arranged diagonally across tread. These are designed to be far enough apart to prevent squeezing and flattening into a smooth surface when under weight, and in contact with the road surface. As the quadrilaterals on the Ajax tread point in the direction in which they run, it is claimed they offer a minimum of resistance and wear. The tire itself is heavier than the smooth model, the 3 1-2-inch size having five plies of fabric. The breaker strip—the strip of fabric between the inner pliable rubber cushion and the tough outside layer—is made heavy, and the same is true of the entire tread layer.

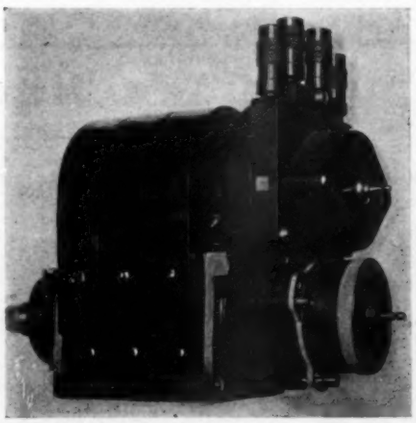


EISEMANN SINGLE-CYLINDER MAGNETO.

Eisemann High Tension Magnetos.—For the coming season the house of Eisemann will produce two types of high tension magnetos intended for the two radically different classes of work, but with similar electrical connections to previous models. The two types will be for use with a separate coil and without a coil, in which case the magneto is a complete ignition system in itself.

In the first style, the make-and-break mechanism is fitted so that it can be detached quickly. This is accomplished by fitting it on a round plate which is readily removable. The contacts are fiber on steel, the cam being steel and the lever carrying the platinum point being fitted with a piece of fiber. The high tension distributer has an automatic cover and arm. The brushes are of steel, used to give the best contact with the least rubbing on the copper. The armature is on ball bearings on the cam side and plain bearings on the driving end. The armature is of the same type as before, the low tension type.

The self-contained type is a departure for this firm, being produced for the first time. The low tension current produced by the primary windings is periodically interrupted by a revolving break, each break producing a high tension current of very high voltage in the secondary winding. This current is collected by means of a slip ring at the driving end and carried to the distributing plate by an insulated lead and carbon brush to the inside of the distributing arm on the distributing plate. This arm is fitted with a long rubber sleeve to secure perfect insulation. For advance, the point of breaking may be displaced by simply



EISEMANN FOUR-CYLINDER TYPE.

shifting the steel shoes on which the fiber block of the breaker lever is kicking. This range of advance is obtained without decreasing the intensity of the spark. The armature is mounted the same as in the first case, ball bearings on the cam side and plain on the gear end. One new feature is the special disposition of the pole pieces, which are cut helicoidal shape. This gives greater smoothness and a larger advance.

The materials used are nearly all of them specially made for this purpose, a number of them being made to order in Germany. They are thoroughly tested out at the French factory. The American sales of all Eisemann products are handled by Lavalette & Co., 112 West Forty-second street, New York City.

To Reduce Internal Tire Friction.—One of the reasons why tires heat up as they do is because of the very high internal friction, between the tube and the shoe. This may be prevented by the use of some anti-friction powder or liquid, but of such a nature as will not attack the rubber. Many wise autoists use talcum powder; others rub the surfaces with soapstone; but what is claimed to be the best is a preparation just brought out for the purpose, which is neither talc nor soapstone. It is known as Rex powder and is put up in

HOW REX POWDER IS APPLIED.

one-pound cans with combination sifting top, by the Rex Manufacturing Company, Hartford, Conn. The method of use recommended by the makers is to sift a little into the outer shoe just before applying it to the wheel. By putting the powder into the shoe it comes between the shoe and tube where the friction is greatest.

Can't Steal This Clock.—Any automobile owner who has ever been subjected to the petty annoyance of having his clock stolen will appreciate a new clock so constructed as to be thief proof. In the Safety auto clocks, this feature is made prominent. The form is such that a key is necessary to separate the clock from its holding case. The latter is fastened to the dash by means of interior screws, so that with the movement in place these are concealed and consequently inaccessible. A new feature which has just been added to the safety line is the shield. This protects winders from the various objectionable influences such as moisture and will be supplied on all clocks when so desired at a slight additional cost. The clocks are made by Manasseh Levy & Company, 182-184 Broadway, New York City.

INDEX TO ADVERTISERS

Acetylene Gas Illuminating Co. 52
Acme Motor Car Co. 57
Adams Co. 57
Air Tight Steel Tank Co. 81
Ajax-Grieb Rubber Co. 91
Aluminum Foundry Co. 53
American Electric Fuse Co. 82
American Motor Car Co. 71
American School of Correspondence 55
Anderson Forge & Machine Co. 53
Asphalt Ready Roofing Co. 70
Atwater-Kent Mfg. Works. 51
Austin Automobile Co. 107
Autocar Co. 76
Auto Car Mfg. Co. 87
Auto Tire Security Co. 89
Auto & Supply Mfg. Co. 52

Baker Mfg. Co. 74
Baldwin Chain & Mfg. Co. 53
Biddle & Smart Co. Cover
Billings & Spencer Co. 51
Bi-Motor Equipment Co. 51
Black Mfg. Co. 64
Bliss-Chester Co. 52
Blue Book. 62
Bongartz Co. 65
Borne Scrymser Co. 56
Bosch Magneto Co. 86
Boston Auto Gage Co. 52
Bowser & Co., S. F. 81
Boyle & Co., John. 66
Bretz Co., J. S. 64
Brown Co. 65
Brown & Co., S. N. 56
Brownell Motor Co., F. A. 53
Brush Runabout Co. 90
Buckeye Jack Mfg. Co. 54
Buckeye Mfg. Co. 72
Buffalo Specialty Co. 82
Buob & Scheu. 56
Burnett-Compound-Spring Co. 69
Byrne-Kingston Co. 93

Cadillac Motor Car Co. 57
Cameron Motor Co. 74
Canton Drop Forging Co. 53
Carter Car Co. 71
Chadwick Engineering Works. 74
Cleanola Co. 74
Cleveland Puncture Proof Tire Co. 65
Coes Wrench Co. 46
Conn. Tel. & Elec. Co. 90
Continental Caoutchouc Co. 56
Continental Motor Mfg. Co. 61
Cook's Sons, Adam. 65
Corbin Motor Vehicle Corp. 73
Corcoran Lamp Co. 55
Cornish Friedberg Motor Co. 57
Correspondence School Motor Car Practice 78
Covert Motor Vehicle Co. 57
Crane Puller. 52
Cullman Wheel Co. 53

Dayton Motor Car Co. 72
Dayton Rubber Mfg. Co. 56
De Luxe Motor Car Co. 57
Diamond Chain & Mfg. Co. 100
Diamond Rubber Co. 101
Dietz Co., R. E. 95
Dixon Crucible Co., Joseph. 64
Dow Tire Co. 76
Driggs-Seabury Ordnance Corp. 81
Duff Mfg. Co. 54
Duplex Co. 56
Duplex Coil Co. 84

Echo Horn Co. 68
Edmund & Jones Mfg. Co. 55
Eldredge Electric Mfg. Co. 52
Empire Automobile Tire Co. 73
Everett-Metzger-Flanders Co. 73
Excelsior Supply Co. 61
Excelsior Tire Co. 55

Ferro Machine & Foundry Co. 99
Firestone Tire & Rubber Co. 75
Fisk Rubber Co. 95
Flentje, Ernst. 68
Fort Pitt Motor Car Co. 57
Franklin Mfg. Co., H. H. 103
Fried-Ostermann Co. 106

G & J Tire Co. 81
Gabriel Horn Mfg. Co. 88
Gaeth Automobile Co. 72
Gearless Motor Car Co. 57
Goodrich Co., B. F. 54
Goodyear Tire & Rubber Co. 66
Gramm-Logan Motor Car Co. 57
Grossman Co., Emil. 80
Grout Automobile Co. 79

Ham Mfg. Co., C. T. 54
Hardy Co., R. E. 52
Harris Oil Co. 85
Hart-Kraft Motor Co. 71
Hartford Suspension Co. 68
Havoline Oil Co. Cover
Haws, Geo. A. 54
Haynes Automobile Co. 104
Heinze Electric Co. 58
Hemmeter Spark Plug Co. 70
Henricks Novelty Co. 84
Herschell-Spillman Co. 53
Herz & Co. 57
Hess-Bright Co. 53
Hill Dryer Co. 58
Hoffecker Co. 70
Hoffman, Geo. W. 52
Holtzer-Cabot Electric Co. 68
Hotel Woodstock. 58
Howard Motor Works. 57
Hoyt Electrical Ins. Works. 79
Hydraulic Pressed Steel Co. 59

Indestructible Steel Wheel Co. 53
Interstate Automobile Co. 72

Jackson Automobile Co. 57
Jeffery & Co., Thos. B. 109
Jewell Motor Car Co. 77

K.-W. Ignition Co. 78
Karl Co., Adolph. 52
Keystone Lubricating Co. 97
Kimball Tire Case Co. 64
King Top Mfg. Co. 56
Kissell Motor Car Co. 71
Knox Auto Co. 93
Konigslow, Otto. 53

Lansing Wheelbarrow Co. 69
Larchmont Mfg. Co. 52
Leather Tire Goods Co. 56
Lehman Mfg. Co., J. H. 52
Leland Co., W. H. 66
Lexington Motor Car Co. 73
Life Publishing Co. 52
Lipman Mfg. Co. 54
Lobee Pump & Machinery Co. 54
Locomobile Co. of America. 57
Long Arm System Co. 69
Long Mfg. Co. 71
Loring Appliance Co. 52
Lucas & Co., John. 56

M. & E. Mfg. Co. 78
Maple City Mfg. Co. 58
Masury & Son, John W. 83
Matheson Automobile Co. 88
McCue Co. 57
Metz, Chas. H. 72
Mezger, C. A. 89
Michelin Tire Co. 56
Midland Motor Car Co. 73
Miller, Chas. E. 92
Mitchell Motor Car Co. 71
Model Automobile Co. 72
Moline Automobile Co. 68
Moon Motor Car Co. 57
Morgan & Wright. 94
Morrison-Riker Mfg. Co. 96
Mosler & Co., A. R. 61
Moss Photo Engraving Co. 82
Motor Car Equipment Co. 86
Motor & Mfg. Works Co. 98
Motz Clincher Tire & Rub. Co. 56
Mutty Co., L. J. 56

N. Y. Sporting Goods Co. 55
N. Y. & N. J. Lubricant Co. 82
National Tube Co. 65
National Brake & Clutch Co. 53
National Motor Vehicle Co. 87
New Departure Mfg. Co. 97
New Process Rawhide Co. 66
Nightingale Whistle Mfg. Co. 88
Nonkoroda Co. 58
Nordyke & Marmon Co. 94
Nuttall Co., R. D. 53

Oakes & Dow Co. 60
Oakland Motor Car Co. 71
Olds Motor Works. 57
Orange Machine & Mfg. Co. 76
Overland Automobile Co. 98
Owen & Co., R. M. 56

Packard Electric Co. 70
Packard Motor Car Co. 111
Palmer & Singer Mfg. Co. 57
Pantasote Co. 58
Parish & Bingham. 53
Parker, Stearns & Co. 56
Pennsylvania Auto Motor Co. 92
Petrel Motor Car Co. 76
Peugeot Frères. 53
Pierce Co., Geo. N. Cover
Portland Garage. 55
Premier Motor Mfg. Co. 112
Prest-O-Lite Co. 85
Prosser & Sons, Thos. 75
Puritan Gas Tank Co. 75

Quincy-Manchester-Sargent Co. 53
Quride Hide Co. 53

Raimes & Co. 52
Randall-Faichney Co. 64
Rapid Motor Vehicle Co. 108
Rauch & Lang Carriage Co. 87
Remy Electric Co. 52
Republic Rubber Co. 56
Reynolds, Harry H. 54
Robert Instrument Co. 52
Robinson & Sons Co., Wm. C. 52
Rock Island Battery Co. 85
Rockwood Mfg. Co. 60
Rome-Turney Radiator Co. 70
Royal Equipment Co. 52-68
Rushmore Dynamo Works. 59

S. M. Supply Co. 78
Salisbury Wheel & Mfg. Co. 52
Schenectady Spark Plug Co. 74
Schrader's Sons, A. 84
Schubert Bros. Gear Co. 56
Selden Motor Vehicle Co. 72
Shaler Co., C. A. 86
Sireno Co. 52
Siro Carbureter Mfg. Co. 54
Skinner & Skinner. 83
Spacke Machine Co., F. W. 83
Spare Motor Wheel of Amer. 70
Speed Changing Pulley Co. 66
Speedwell Motor Car Co. 92
Spicer Universal Joint Mfg. Co. 53
Splitdorf, C. F. 58
Sprague Umbrella Co. 70
Springfield Metal Body Co. Cover
St. Louis Supplementary Spiral Spring Co. 84
Standard Co. 63
Standard Roller Bearing Co. 71
Standard Sales Co. 52
Standard Welding Co. 75
Stanley & Patterson. 77
Star Speedometer Co. 105
Stearns Co., F. B. 87
Stein Double Cushion Tire Co. 60
Stevens-Duryea Co. 96
Stewart & Clark Mfg. Co. 67
Stitch-in-Time Vulcanizer Co. 60
Stromberg Motor Device Co. Cover
Studebaker Automobile Co. 73
Swinehart Clincher Tire Co. 69
Syracuse Alum. & Bronze Co. 53
Syracuse Chemical Fire Extinguisher Co. 76

Thomas Motor Co., E. R. 73
Timken Roller Bearing Axle Co. 78
Tiresele Mfg. Co. 75
Tray Plate Battery Co. 65
Triple Action Spring Co. 66
Trenton Rubber Mfg. Co. 54
Trimont Mfg. Co. 75
Tucker, C. F. 52
Tudor Mfg. Co. 69

Uncas Specialty Co. 61
Underwood Typewriter Co. 85
Universal Tire Protector Co. 66
Utility Co. 53

Van Wagner Mfg. Co., E. B. 54
Veeder Mfg. Co. 91
Velie Motor Vehicle Co. 92
Victor Clutch Compound Co. 56
Victor Tire Traction Co. 69

W. D. Spring Cushion Tire Co. 77
Waban Webbing Co. 54
Warner Instrument Co. 92
Watres Mfg. Co. 86
Watt-Detroit Carbureter Co. 69
Weed Chain Tire Grip. 68
Western Motor Co. 69
Weston Elec. Instrument Co. 77
Wheeler & Schebler. 102
White Co. 110
Whitlock Coil Pipe Co. 75
Whitney Mfg. Co. 75
Widmer Machine Works, C. A. 70
Willard Storage Battery Co. 69
Willett Engine & Carbureter Co. 83
Williams & Co., J. H. 74
Winton Motor Carriage Co. 72
Witherbee Igniter Co. 52
Wyman & Gordon Co. 51

Xavgil Mfg. Co. 66

York Motor Car Co. 55

Zimmerman Mfg. Co. 79

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